

ABSTRACT

Title of Document: A META-ANALYTIC INVESTIGATION OF
THE PREDICTORS OF EDUCATIONAL AND
VOCATIONAL GOALS FOR LATINA/O
STUDENTS

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Despite the growth of the U.S. Latina/o population, there exists a pattern of academic underachievement and low career attainment among Latina/o communities (U.S. Census Bureau, 2010). In light of disparities in educational and vocational attainment, much has been written about the educational and career goal formation processes of Latina/o students. However, the empirical studies that address predictors of educational and vocational goals present a complex picture. To advance knowledge in this area, the current study provided a meta-analytic review of the correlates of educational and career goals for Latina/o students, accounting for the similarities and differences across 26 independent samples drawn from 25 studies. In conceptualizing the career development of Latina/o students, Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994) was used as the foundation for examining the relations among the predictor and outcome variables of interest. Correlates of educational and vocational goals included career-relevant person variables (i.e., career-related self-efficacy), sociocultural person variables (i.e., acculturation and ethnic identity), and contextual variables (i.e., barriers and support). Specifically, an empirical synthesis was conducted of 87 correlations from 16

published studies (with 17 samples) and nine unpublished reports that examined predictors of Latina/o students' educational and vocational goals. Findings indicated that across various study and sample characteristics, effect sizes were small for all the correlates of interest with the exception of career-related self-efficacy (which evidenced a moderate effect size). Additionally, type of goal measure, developmental stage of sample, and study source provided adequate models of moderation. Type of goal measure was found to moderate the effects of career-related self-efficacy, perception of barriers, and support from an important adult on educational/vocational goals while developmental stage of the sample moderated the main effects of perception of barriers. Moreover, study source moderated the effects of career-related self-efficacy, support from an important adult, and support from peers. To end, the contributions of the current work highlighted limitations in the literature, generated directions for future research, and provided recommendations for intervention and prevention efforts with Latina/o communities.

A META-ANALYTIC INVESTIGATION OF THE PREDICTORS OF
EDUCATIONAL AND VOCATIONAL GOALS FOR LATINA/O STUDENTS

By

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In the words of a leader who embodied perseverance, Cesar E. Chavez, “We cannot seek achievement for ourselves and forget about the progress and prosperity for our community...Our ambitions must be broad enough to include the aspirations and needs of others, for their sakes and for our own.” This dissertation is in dedication to those who have the courage to aspire to that which they have envisioned, despite the obstacles they may face.

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Chapter 1: Introduction

Latina/os represent the fastest-growing ethnic minority population in the United States (U.S.), accounting for 56% of the nation's growth between 2000 and 2010 (U.S. Census Bureau, 2010). In fact, data from the 2010 U.S. Census indicated that 23% of all U.S. K-12 students were of Latina/o origin. Furthermore, projections released in 2009 indicated that by 2050, 30% of the U.S. population will consist of Latina/o persons. However, as the number of U.S. Latina/os is rapidly growing, there exists a pattern of academic underachievement and low career attainment among this population. In 2009, 23.5% of the population of U.S. Latina/os age 25 and older had less than a 9th grade education which was significantly higher than the rates for White (3%), Black (5.4%), and Asian (8.6%) persons (PEW Hispanic Center, 2009). Moreover, in 2009, 12.7% of U.S. Latina/os age 25 and older had completed college, compared to 31.1% for White, 17.7% for Black, and 49.9% for Asian persons. In the current study, the term Latina/o was used to refer to "individuals of diverse Hispanic-based national origins including Mexico, the countries of Central America ..., the Spanish-speaking countries of South America ..., the Spanish-speaking countries of the Caribbean ..., and the U.S. territorial island of Puerto Rico" (Casas & Pytluk, 1995, p.156).

It has been noted that education affords greater opportunities for employment and consequently leads to economic and social mobility (Worthington, Flores, & Navarro, 2005). Thus, low career attainment and decreased opportunities for progression within economic and social structures are probable outcomes of the pattern of Latina/o underachievement in education. According to the Bureau of Labor Statistics (2009), Latina/o persons were less likely than White and Asian persons to hold "management,

professional, and related occupations” (the major job category yielding the highest earnings). Furthermore, Latina/os accounted for 14% of all employed workers but were disproportionately represented by a substantial amount in several job categories, including “construction laborers” (44%), “maids and housekeeping cleaners” (42%), and “grounds maintenance workers” (40%). In 2009, 64% of Latina women worked in “service jobs” and in “sales and office jobs,” compared with 59% of Black women, 53% of White women, and 46% of Asian women. Moreover, one-fourth (25%) of Latina/o families were maintained by women (with no spouse present) compared to approximately 15% of White families and 13% of Asian families. Among Latino men, nearly half were employed in two job groups; “natural resources, construction, and maintenance occupations” and “production, transportation, and material moving occupations.” Latina/o persons had considerably lower earnings than Asian and White persons (Bureau of Labor and Statistics, 2009). These figures suggested that a rapidly increasing proportion of the U.S. population will be comprised of persons whose opportunities for economic and social mobility are considerably limited. Indeed, the implications for the economic well-being of the U.S. are substantial given that a society’s economic strength rests on the educational attainment of its population and the extent to which the academic and career abilities of all individuals who make up the population are utilized (Vasquez, 2006).

The construct of self-efficacy has intrigued educational and vocational researchers since first introduced by Bandura (1977) three decades ago. This construct refers to an individual’s confidence in her or his abilities to undertake appropriate courses of action. In an effort to explain the low percentages of women employed in career fields

dominated by men, Hackett and Betz (1981) applied the concept of self-efficacy to women's career behavior. These researchers were the first to use the construct of self-efficacy to explain women's career choices in traditional occupations. They found that in spite of attaining higher math grades and achievement scores than their male counterparts, women college students reported lower math self-efficacy beliefs and these beliefs influenced their career choices. This study demonstrated the power of self-efficacy beliefs in the process of goal formation.

Subsequently, Lent, Brown, and Hackett (1994) extended the application of self-efficacy to career development by incorporating a wider range of social cognitive mechanisms and processes. Of particular interest to these authors were two additional person variables proposed under general social cognitive theory; namely, outcome expectations (i.e., beliefs about the outcomes of numerous plans of action) and personal goals (i.e., an individual's determination to pursue a particular plan of action). Lent and his colleagues advanced social cognitive career theory (SCCT) to include three overlapping models intended to explain the processes through which individuals (a) formulate educational and vocational interests, (b) develop and augment educational and vocational goals, and (c) persist and achieve at varying levels of success in their educational and vocational endeavors. These three models are thought to operate in accordance with a variety of additional person, contextual, and learning variables. Examples of such variables include gender, race/ethnicity, ability, social support, and external barriers. Since applied to the career development realm, support has amassed in the academic and career literatures for the critical role that self-efficacy plays as a mechanism of personal agency and positive adaptation in educational and vocational

functioning (e.g., Lent, Brown, Schmidt, Brenner, Lyons, & Treistman, 2003).

Furthermore, the choice model is of particular interest to vocational psychologists studying the career development of adolescence and young adults because it explains the process by which an individual chooses a particular career path with a focus on the specific mechanisms that shape related interests and choices (Flores, 2009). These interests and choices are thought to be proximal and highly predictive of school/educational achievement (i.e., performance/persistence) and career attainment (i.e., entry into a particular career field).

Much has been written in the literatures in education and psychology about the educational and career achievement of Latina/o students (e.g., Battle, 2002; Miranda & Umhoefer, 1998; Torres & Solberg, 2001). However, the empirical studies that addressed predictors of educational and career achievement provided mixed findings. For example, the extent to which acculturation predicts vocational goals varied depending on the particular achievement criterion used. When limited to a particular domain such as math/science goals, results from one study suggested that Anglo-oriented acculturation was not a significant predictor (Navarro, Flores, & Worthington, 2007). However, other researchers found that Anglo-oriented acculturation was a significant predictor of a more global outcome, educational goals (Flores, Ojeda, Huang, Gee, & Lee, 2006). Thus, to clarify our knowledge in this area, a meta-analysis of the variables that predict the educational and vocational goals of Latina/o students was conducted. A meta-analysis allows researchers to synthesize the empirical literature in a given area by converting a variety of statistics into a common metric, thereby allowing the investigators to draw conclusions across studies.

Specifically, the current study empirically synthesized 87 correlations from 26 independent samples (16 published studies with 17 samples and nine unpublished reports) that examined predictors of Latina/o students' educational and vocational goals. In conceptualizing the career development of Latina/o students, the current study used Social Cognitive Career Theory (Lent et al., 1994) as the foundation for examining the relations among the predictor and outcome variables of interest. More specifically, the current study examined the magnitude of the relations between career-relevant person variables (i.e., career-related self-efficacy), sociocultural person variables (i.e., acculturation and ethnic identity), contextual variables (i.e., barriers and support), and educational/vocational goals (i.e., goals, aspirations, choice, and expectations) for Latina/o students. Thus, studies that were included in the current meta-analysis were those in which relations between career-relevant person variables, sociocultural person variables, and contextual variables had been examined as predictors of educational and/or vocational goals. Furthermore, a research synthesis of the interactive effects of contextual variables on the relation between career-relevant person variables and educational/vocational goals was included. In a research synthesis, as opposed to a literature review, the researcher seeks to provide an integrative review of the literature that culminates with research generalizations (Cooper & Hedges, 1994). Moreover, the researcher represents the findings from a neutral position and intends to be exhaustive in the coverage of the literature. To clarify further, meta-analysis refers to a particular type of research synthesis that involves statistical analysis.

A preliminary review of the literature was conducted and salient variables across studies that related to the theoretical foundation of this study were identified. One group

of variables noted in the literature review was *career-relevant person variables* which can be defined as characteristics of the individual that are involved in the formation of her or his career goals. This group of predictor variables specifically referred to career-related self-efficacy constructs (e.g., nontraditional career self-efficacy, career decision-making self-efficacy); sociocognitive person variables hypothesized by SCCT to be both directly and indirectly related to the formation of vocational goals.

The second group of predictor variables was collectively referred to as *sociocultural person variables*. Variables in this group were defined as characteristics of the individual that relate to how she or he processes social information in reference to her or his cultural values and practices (i.e., acculturation) as well as ethnic group membership (i.e., ethnic identity). The educational and occupational disparities noted earlier reflect the salience of race and ethnicity in the context of educational and career development. For this reason, career development theories that focus centrally on individual differences or personal agency as the primary indicators of educational and career outcomes have received criticism for their lack of attention to the social context of racial and ethnic inequity (Worthington et al., 2005). Furthermore, the literature on the educational and vocational achievement of Latina/o students underscored the significance of sociocultural variables in career decision-making processes. In consideration of this criticism and to reflect the abundance of literature examining sociocultural elements in the educational and career behaviors of Latina/o students, the current meta-analysis included a grouping of sociocultural person variables.

With regard to the third group of predictor variables, Lent, Brown, and Hackett (2000) argued for more research that examines the role of contextual variables in career

development, particularly with individuals from underrepresented populations. As put forward by these authors, *contextual variables* referred to characteristics outside the person that constrain or enhance personal agency (i.e., barriers and social support). Since this conceptual refinement of SCCT that hypothesized the moderating role of environmental factors in the formulation of career goals, research examining these relations for Latina/o students has amassed. Contextual variables thus represented a third group of predictors in the current meta-analysis.

The contributions of the current meta-analysis were threefold. First, while researchers continue to raise important empirical questions concerning the educational and vocational development of Latina/o students, no summative work has been published that examined the magnitude of the various predictors of educational/vocational goals with Latina/o students. As the extant literature was unclear as to what the strongest predictors were of educational and career success for Latina/o students, the current study could have the potential to provide formative recommendations. This was important as the literature on Latina/o student educational and career development had grown beyond our ability to narrate an integration of the myriad of predictors of interest to researchers. In light of the empirical studies that have accumulated and the contradictory findings associated with much of this research, there was a growing need for a theory-driven statistical review and integration of the current state of the literature. Grounded in the framework of SCCT (Lent et al., 1994; 2000), the current study provided an empirical investigation of the relative strength of career-relevant person, sociocultural person, and contextual predictors of educational and vocational goals across empirical studies.

Second, the hallmark of a meta-analysis is that investigators can provide direct guidance for future research. Specifically, a researcher conducting a meta-analysis might provide clarification of the overall effect of a predictor variable across multiple operationalizations of the construct, thereby addressing a limitation in the literature. For example, acculturation has been widely noted to be a culturally relevant construct for Latina/o communities (Vasquez, 1982). In the realm of vocational attainment, researchers have questioned the extent to which identification with one's culture of origin is facilitative or prohibitive of academic and vocational achievement. To address this question, some have called for multidimensional measures of acculturation that allow respondents to indicate participation in two or more cultures with the assumption that such participation creates the framework for a more flexible and sophisticated cultural adjustment (Ramirez & Castañeda, 1974). This cultural flexibility is then predicted to enhance rather than hinder one's learning and vocational outcomes (Hurtado, Engberg, Ponjuan, & Landreman, 2002; Ramirez, 1999). Meta-analysis presented the opportunity to provide an empirical synthesis of the effect of acculturation on educational and vocational goals across various operationalizations of acculturation.

Last, by ascertaining the current status of the research on Latina/o students' career attainment, the implications for planning empirically informed interventions and social justice oriented programs that intervene in the intergenerational cycle of academic and vocational underachievement were numerous (Navarro et al., 2007). From an intervention perspective, it would be instructive to examine the relative magnitude of social support and career-related self-efficacy, for example, on vocational goals. Research supported the positive effects that nurturing-involved parenting and school personnel had on vocational

attainment (Martinez, DeGarmo, & Eddy, 2004). Research also supported the role of career-related self-efficacy in achievement (Gushue, Clarke, Pantzer, & Scanlan, 2006). However, the current meta-analysis has the potential to answer the question of the relative strength of the relations among these variables across samples by using precise coding and comprehensive accumulation procedures.

In sum, the current study sought to examine the magnitude of the relations between career-relevant person variables (i.e., career-related self-efficacy), sociocultural person variables (i.e., acculturation and ethnic identity), and contextual variables (i.e., barriers and support) and educational/vocational goals for Latina/o students using meta-analytic methodologies. Meta-analysis allowed for the calculation of the magnitude of the overall relation between career-relevant person, sociocultural person, contextual variables, and educational/vocational goals. In addition, SCCT posited that sociocultural influences on educational/vocational goals were mediated through self-efficacy and that the contextual variables of barriers and support had a moderating role. Thus, the magnitude of the overall association between sociocultural person variables and career-relevant person variables also was examined. Furthermore, because meta-analytic procedures were unable to incorporate the potential moderators of barriers and support, the interactive effects of these variables were analyzed through a process of research synthesis (i.e., narrative integration of the literature as opposed to a statistical integration). The potential contributions of the current work extended beyond providing a statistical review and synthesis of the literature. Rather, the current meta-analysis aimed to highlight limitations in the literature, generate future directions for research, and

provide recommendations for clinical practice, group interventions, and prevention efforts with Latina/o communities.

Chapter 2: Literature Review

The following review begins with an overview of social cognitive career theory. The subsequent section provides a description of the empirical literature that examined the career-relevant person, sociocultural person, and contextual predictors of educational and vocational goals for Latina/o students. Next is a discussion of demographic variables (background variables in a SCCT framework) as well as gender differences that have been assessed in the literature. Concluding this review is an overview of meta-analysis as well as the research questions that guided the current meta-analysis.

Overview of Social Cognitive Career Theory

Lent et al. (1994) introduced social cognitive career theory (SCCT) in an effort to understand the processes through which individuals formulate interests, make educational and career-related choices, and achieve varying levels of educational and vocational success. Rooted in Bandura's (1986) social cognitive theory, SCCT explicates the process by which several cognitive-person variables interact with other aspects of the person and her or his environment to steer the course of career development (Lent et al., 2000). Central to Bandura's social cognitive theory is the concept of self-efficacy; defined as, "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p.391). Self-efficacy, in contrast to self-esteem which is a more global construct, represents a constellation of self-referent beliefs connected to specific performance domains and activities (Lent, 2005). As originated by Bandura, first applied to a career development framework by Hackett and Betz (1981), and subsequently expanded by Lent and

colleagues (1994, 2000), self-efficacy is understood to be one of the most important antecedents of thought and behavior.

The theoretical framework of SCCT is assembled into three interlocking segmental models (Lent et al., 1994; Lent, 2005). The first segment involves the development of academic and career interests, the second concerns the formation of educational and vocational goals or choices, and the third involves the nature and results of performance in academic and career arenas. Furthermore, in their presentation of SCCT, Lent et al. (1994) distinguished two levels of theoretical inquiry (Lent et al., 2000). The first level concerns cognitive-person variables that enable individuals to exercise personal agency within their career development process. Cognitive-person variables refer to self-efficacy, outcome expectations, and personal goals. The second level of inquiry concerns the paths through which several additional sets of variables influence career-related interests and choice behavior. Examples of these sets of variables include physical attributes (e.g., sex and race), features of the environment, and particular learning experiences. In sum, in each of the three segmental models that comprise the SCCT framework, the cognitive-person variables (i.e., self-efficacy, outcome expectations, and goals) are hypothesized to operate in accordance with other critical aspects of persons (e.g., race/ethnicity, gender), their contexts, and learning experiences to shape academic and career development (Lent, 2005).

To elaborate on the cognitive-person variables, outcome expectations have been defined as “beliefs about the consequences or outcomes of performing particular behaviors” (Lent, 2005, p. 104). While self-efficacy concerns beliefs about one’s ability to complete specific tasks or activities, outcome expectations represent appraisals of the

consequences of engaging in a particular activity (Lent et al., 1994). Bandura (1986) made the distinction between several classes of outcome expectations that are believed to follow certain courses of action. These include certain physical (e.g., monetary), social (e.g., approval of significant others), or self-evaluative (e.g., personal satisfaction) outcomes. Furthermore, outcome expectations are appraised by the individual in terms of their valence (positivity vs. negativity), locus (self-administered vs. other-administered), or relative significance to the individual. Although both self-efficacy and outcome expectations are postulated to have an influence on career-related behavior, Lent et al. (1994) noted that these two social cognitive mechanisms may differentially influence career choices and behavior. When performance quality guarantees the outcome, then self-efficacy is hypothesized to be the most influential determinant of behavior, whereas when outcomes are not completely dependent on performance, then outcome expectations are hypothesized to be the most influential determinant of behavior (Lent et al.). For example, a Latina high school student might possess high self-efficacy beliefs for completing a bachelor's degree, but might not chose to apply to college because she perceives that she will encounter race related barriers to completing her degree. This particular example demonstrates that outcome expectations may exert a greater influence than self-efficacy beliefs on the career choice behavior of racial-ethnic minority students as a result of systemic barriers predicated on racial oppression (Morrow, Gore, & Campbell, 1996).

Despite SCCT propositions that posit the critical role of outcome expectations in shaping career behavior, there are very few studies that have examined the role of outcome expectations in the career development of Latina/o students. A parallel construct

that proliferates in the career development literature on Latina/o students is that of perceived barriers. However, Lent et al. (2000) noted that perceived barriers refers to a particular type of outcome expectation that one anticipates she might encounter while in the process of pursuing a certain course of action, and is thus more proximal to the career decision-making process. Lent and colleagues therefore consider perceived barriers as process expectations in the more immediate context that moderate the relations between the cognitive-person variables. This notion is discussed further below in terms of distal versus proximal environmental influences.

In the SCCT literature, personal goals have been operationalized as career plans, decisions, aspirations, and expressed choices across studies. The degree of specificity of the goal and the proximity of the goal to actual choice implementation accounts for the application of distinct terms (Lent et. al., 1994). For example, career goals often have been referred to as occupational aspirations when they are assessed remotely in time from actual career entry and do not demand commitment or bear consequences. However, terms such as career choice, plans, or decisions are used to refer to career goals that involve specific intentions (e.g. determination to engage in a particular field or role), are assessed more proximally to career entry, and require a commitment (Lent et. al.).

Lent et al. (2000) stated that since the contribution of SCCT to the career development literature, much research and many practical applications have been formulated from this theory (e.g., Lent, Brown, & Gore, 1997; Smith & Fouad, 1999). However, these authors indicated that much of this work narrowly focuses on SCCT's cognitive-person variables in the absence of an examination of critical environmental variables that are thought to directly and indirectly influence both cognitive-person

variables and other aspects of vocational behavior. In light of the amassing literature on barriers and support for career development, there are several areas in which SCCT's formulation of environmental effects may be elaborated. Specifically, one of the conceptual refinements proposed by these authors was informed by a contextual-developmental perspective.

As proposed by SCCT, career development is influenced both by objective and perceived environmental factors (Lent et al., 2000). Examples of objective environmental factors include the quality of the educational experiences to which one has been afforded and the financial support available to one for pursuing particular training goals. Perceived environmental factors refer to the individuals active role in processing both positive and negative environmental influences. Thus, from an SCCT framework, the objective aspects of the environment as well as the appraisals and responses an individual formulates for such factors yields the potential for personal agency in one's career development.

Environmental influences can be further distinguished between distal and proximal influences. This distinction takes into account the temporal context in which choice-making occurs. Distal background contextual factors affect the learning experiences through which career-relevant self-efficacy and outcome expectations develop. Proximal contextual influences, by contrast, are considered particularly important during the active phases of educational and career decision-making. Further, in accordance with SCCT, it is the proximal environmental variables that are thought to moderate the relations among the cognitive-person variables (e.g., self-efficacy to goals). Two adverse environmental factors that are posited to impede career efforts include the

perception of barriers and inadequate systems of support. Lent et al. (2000) noted that developmental-contextualist models of environmental influences provide useful ways to conceive of the distal and proximal channels through which the environmental context impinges on human behavior. In a career development context, particular features of one's most immediate contextual layer may filter perceptions of barriers in the larger social structure and provide sources of information about how one might cope with such barriers (Lent et al.).

Previous researchers have conducted meta-analytic reviews of the specific paths among cognitive variables in the SCCT model. More specifically, published meta-analyses have examined the relations between self-efficacy and academic outcomes (Multon, Brown, & Lent, 1991), self-efficacy and interests (Rottinghaus, Larson, & Borgen, 2003), and among self-efficacy, outcome expectations, interests, choice goals, ability, and performance (Lent et al., 1994). In their study examining the relation of self-efficacy to academic outcomes, Multon and colleagues reported an effect size estimate of .38 with a total of 38 studies. The meta-analytic studies investigating the relation between self-efficacy and interests revealed average weighted effect sizes of .53 (13 studies; Lent et al.) and .59 (60 studies; Rottinghaus et al.). Finally, Lent and colleagues, using only published studies on the SCCT model, conducted a series of 15 meta-analyses and reported effect sizes ranging from .06 (choice goals to performance path) to .60 (interests to choice goals path).

The aforementioned meta-analytic studies provide support for the applicability of SCCT in understanding the processes that unfold in one's career development as well as how to intervene in this process. However, there has not been a published meta-analysis

of the SCCT paths as they pertain to racially and ethnically diverse groups. Little is known about the overall strength of the effect of cognitive, sociocultural, and contextual variables in the educational or career development of such groups.

Review of the Empirical Literature on Latina/o Student Goal Formation

This section provides a review of the empirical studies that address the educational and career development processes of Latina/o students at various levels of education (i.e., K-12 students and college students). First is a discussion of the outcome variables of interest in the current meta-analysis. These included educational and career aspirations, expectations, choice, and goals, all of which have been examined in the extant literature as components of vocational achievement. The review is further organized into subsections specifically addressing the career-relevant person, sociocultural person, and contextual predictors of educational and vocational goals.

Educational and vocational goals. Over the past four decades, the career development literature has evidenced an increase in the number of studies addressing the underachievement of communities of color in both education and the world of work (Flores et al., 2006). Many of these studies sought to identify the sociocognitive and culturally relevant (i.e., sociocultural) predictors of vocational achievement. However, an attempt to narrate an integration of the findings from such studies becomes exceedingly complicated when one considers the breadth of variables within this literature that serve as markers of vocational achievement.

Aspirations and expectations. A number of studies have examined expectations of educational and career attainment as a criterion that is distinct from educational and career aspirations. Expectations were thought to represent educational or career pursuits

that an individual considers attainable given the reality of her or his life circumstances, while aspirations were thought to represent educational or vocational potentialities given optimal circumstances (Metz, Fouad, & Ihle-Helledy, 2009). By origin, career aspiration referred to the degree of traditionality and prestige associated with one's chosen career (Farmer, 1985). However, O'Brien (1992) called for the need to reconceptualize traditional measures of career aspirations suggesting that such measures did not accurately capture aspirations in women's career-related behavior. As contended by O'Brien, equating traditionality with aspiration obscures the distinction women make between career choice and aspiring for leadership or continued education within a particular field. O'Brien thus redefined career aspiration as the degree to which women aspire to leadership positions and to further their education within their chosen career (Gray & O'Brien, 2007). This new understanding of career choice has been applied to the career-related behaviors of Latina/o communities, and communities of color more broadly.

In light of the distinction between vocational expectations and aspirations, Rojewski (2005) argued for the need to examine the extent to which an individual experiences congruence or discrepancies between her or his career aspirations and expectations. Moreover, given the racial and ethnic disparities in achievement that characterize the social context, researchers have underscored the importance of determining the extent to which racial and ethnic minorities experience a discrepancy between what they aspire to achieve in an ideal sense, and what they believe they will achieve in reality. Fouad and Byars-Winston (2005) conducted a meta-analysis to determine differences in career choice based on race and ethnicity. Findings from their

review indicated significant differences in career expectations based on race/ethnicity but no differences in career aspirations. Racial/ethnic minority individuals anticipated fewer career opportunities and expected to encounter more barriers when compared to their White counterparts.

Specific to Latina/o populations, Arbona and Novy (1991) explored both gender and ethnic differences in the career aspirations and expectations of a large sample ($n = 866$) of first-year college students. Mexican American and African American students were found to have lower career expectations (assessed by expectations to pursue realistic and conventional occupations) when compared to their European American peers while there were no significant racial/ethnic differences found with regard to aspirations. McWhirter, Hackett, & Bandalos (1998) specified educational and career expectations as two early indicators of career choice and argued that these constructs, in contrast to aspirations, were more closely associated with educational and career-related outcomes for Mexican American students. Citing literature that suggested that racial/ethnic minority students have lower educational and career related expectations than aspirations (e.g., Smith, 1983), these authors noted the importance of focusing on expectations. More specifically, these authors examined a structural model predicting the educational and career expectations of 282 Mexican American girls. This model, derived from Farmer's (1985) model of career commitment and aspirations, was then subsequently tested on comparable samples of Mexican American boys and European American girls to examine the relative salience of ethnic group membership and gender in the fit of the model. To assess the outcome variables, indexes of the anticipated level of education and of career expectations were adapted from the work of Farmer. Specifically, respondents were

asked to indicate the level of education they planned to complete with six possible responses ranging from “high school” to “professional degree such as MD, PhD, or JD.” In regards to career expectations, respondents were asked to write the name of the occupation that “you expect you will probably end up in.” These occupations were then rated in accordance with a socioeconomic index and occupational classification system. Interestingly, for Mexican American girls, the model predicting educational plans was far more predictive than the model of career expectations. Further distinguishing between educational/ career expectations and aspirations, Flores, Navarro, and DeWitz (2008) examined the educational goal expectations and aspirations of 89 Mexican American high school students using a social-cognitive career theory framework. Educational goal expectations and aspirations were each measured with a single item that asked participants to indicate the highest level of education they expected to complete and hoped to complete, respectively. Consistent with previous research noted above, respondents reported higher educational aspirations than expectations.

Examining the congruence or discrepancy between racial/ethnic minority persons’ aspirations and expectations has been proposed as a means to determine factors that lead such persons to compromise their aspirations with lowered expectations (Rojewski, 2005). Constantine and Flores (2006) sought to examine the influence of family issues and psychological distress on the career decision making processes and career aspirations of communities that value interdependence and communalism (e.g., African American and Latina/o populations). Specifically, these authors examined the relations among psychological distress, perceived family conflict, and various career-related outcomes including career indecision, career certainty, perceived family conflict, and career

aspiration among college students of color (analyses for racial/ethnic subsamples were conducted and reported separately). Across all subsamples (including Latina/os), greater levels of psychological distress predicted higher levels of career indecision, which was then associated with lower career certainty and greater perceived family conflict. Lower levels of perceived family conflict predicted higher career aspiration. Career aspiration was assessed using the Career Aspiration Scale (O'Brien, 1992), an instrument designed to measure one's goals and plans within their career of choice. Also interested in the contextual influences on aspirations, Ojeda and Flores (2008) employed a modified model of social-cognitive career theory to test the extent to which contextual factors relate to the educational aspirations (assessed by a single item asking participants to indicate the highest level of education they hoped to complete) of Mexican American high school students. With a sample of 186 students, results revealed that perceived educational barriers predicted students' educational aspirations above and beyond the influence of gender, generation level, and parents' education level.

Career choice. In this section as well as the following section on goals, exclusive attention is given to how the constructs were operationalized. Flores and O'Brien (2002) tested Lent et al.'s (1994) career choice model with 364 Mexican American adolescent women. Career choice was represented by the following three dependent variables; career choice traditionality, career choice prestige, and career aspiration. Career choice traditionality was assessed by rating the participants' self-reported top career choice according the percentage of women in that particular career. Career choice prestige was determined using a socioeconomic index of occupational status. The Career Aspiration Scale (O'Brien, 1992) was used to assess career aspirations. Furthermore, using an

extension of Lent et al.'s career choice model, Flores et al. (2006) examined the nontraditional career choice goals of 302 Mexican American adolescent men. Nontraditional career choice was based on the percentage of men employed in a given career that participants self-reported as a top career choice.

Goals. Educational goals represent another outcome variable of interest among vocational researchers. Flores et al. (2006) examined the extent to which acculturation, problem-solving appraisal, and career decision-making self-efficacy were predictive of Mexican American high school students' educational goals. Educational expectations and educational aspirations each were assessed by an item that asked students to indicate the highest level of education they expected and hoped to complete, respectively. Responses ranged from "some high school" to "doctoral or professional degree." The two items were then averaged to obtain an indicator of students' ambitions for their educational training. From the lens of social-cognitive career theory, Navarro et al. (2007) examined the extent to which sociocultural and sociocognitive variables explain the math/science goals of Mexican American youth. Math/science goals were measured using the Math/Science Intentions and Goals Scale (Fouad, Smith, & Enochs, 1997). This measure consisted of items that assess students' intent to pursue and persist in mathematics and science-related courses in their future schooling and careers.

Summary. A number of constructs have been considered to be representative of educational and vocational goal outcomes, and the literature reviewed above reflects this variation. Goals have been operationalized as aspirations, expectations, career choice, and goals. Through meta-analytic techniques, the current study examined whether the effect

sizes of the predictors of interest on educational and vocational goals varied across multiple operationalizations of goals.

Career-relevant Person Variables as Predictors of Goals

Career-relevant person variables refer to career-related self-efficacy variables hypothesized by SCCT to influence the formation of career goals. Various conceptualizations of domain specific career-related self-efficacy are discussed in this section such as career decision-making self-efficacy and self-efficacy to enter a nontraditional career field.

Self-efficacy beliefs have been defined as an individual's "judgments about his or her capabilities to organize and execute courses of action required to attain designated performances" (Bandura, 1986, p. 391). In the educational-vocational realm, such beliefs are thought to influence an individual's interests, choices of activities and settings, as well as a person's efforts and persistence in the face of obstacles (Lent et al., 1994). Self-efficacy beliefs are dynamic, flexible, and tied to specific performance or task domains (Lent & Brown, 1996). Career-related self-efficacy has been shown to be an important element in explaining the career behavior of Latina/o persons (Fouad, 1995). What follows is a review of the literature examining relations between career-related self-efficacy and vocational achievement outcomes.

Building on social-cognitive career theory, Flores et al. (2008) found, contrary to their hypotheses, that college self-efficacy and college outcome expectations were not related to Mexican American high school students' educational goal expectations and aspirations. College self-efficacy was defined as a participants' perceived confidence in performing specific tasks related to college. In Flores and O'Brien's (2002) study of

Mexican American adolescent girls, nontraditional career self-efficacy (defined as self-efficacy expectations with regard to nontraditional, or non female-dominated, occupations) was a predictor of career choice traditionality and career choice prestige. However, nontraditional career self-efficacy was not a predictor of career aspiration. Further, in Flores et al.'s (2006) study of adolescent Mexican American boys, nontraditional career self-efficacy predicted nontraditional career interests. In turn, nontraditional career interests and father's career nontraditionality predicted expressed choice of nontraditional careers.

With a sample of 105 Mexican American students (Flores et al. 2006), standardized regression coefficients revealed that Anglo-oriented acculturation and problem-solving appraisal accounted for variance in educational goals. However, examination of the structure coefficients indicated that in addition to Anglo-oriented acculturation and problem-solving appraisal, career decision-making self-efficacy was related to educational goals for Mexican American students. Furthermore, examination of the structure coefficients indicated that career decision-making self-efficacy was a stronger predictor than is problem-solving appraisal. Career decision-making self-efficacy was defined as confidence in one's abilities to engage in career decision-making tasks. In the study by Navarro et al. (2007), most of the social-cognitive career theory propositions were supported with the sample of 409 Mexican American youth however; past performance accomplishments did not predict math/science outcome expectations.

Summary. Conceptualizations of domain specific career-related self-efficacy that have been introduced in the Latina/o student career development literature include math/science self-efficacy, college self-efficacy, nontraditional career self-efficacy, and

career decision-making self-efficacy. Career-related self-efficacy has been shown to play a pivotal role in the career behavior of Latina/o persons. The current meta-analysis examined relations among career-related self-efficacy variables, sociocultural person variables, and educational/vocational goals for Latina/o students.

Sociocultural Person Variables as Predictors of Goals

Sociocultural variables are thought to be distally related to the career decision-making processes of Latina/o students. Given the hypothesized importance of sociocultural elements in the educational and career behavior of Latina/o students, the sociocultural person variables of acculturation and ethnic identity are discussed in this section as predictors of educational and vocational goals.

Acculturation. Acculturation refers to a process in which members of one cultural group adopt the beliefs and behaviors of another cultural group (Birman, 1994). Psychological acculturation pertains to the changes in attitudes and behaviors in individuals as a result of acculturation. Acculturation has been noted to be a significant psychological process for Latina/o individuals who are in contact with the majority culture as well as their culture of origin (López, Ehly, & García-Vázquez, 2002). For this reason, much has been written about the relation among acculturation and educational and vocational outcomes. Researchers have found that depending on level of acculturation to the dominant culture, traditional Latino values may have more of an impact on vocational behavior (Gloria & Rodriguez, 2000; Lucero-Miller & Newman, 1999).

McWhirter et al. (1998) found that acculturation predicted educational and career plans while perception of barriers did not uniquely contribute. Moreover, Flores et al.

(2008) found that Anglo-oriented acculturation was related to educational goal expectations and educational goal aspirations while Mexican-oriented acculturation was not a predictor. In Flores and O'Brien's (2002) study, acculturation level was associated with career choice traditionality and career choice prestige but not career aspiration. Surprisingly, the background contextual variables (i.e., acculturation, feminist attitudes, mother's education, mother's occupational traditionality) included in the model did not predict nontraditional career self-efficacy. Similarly, Flores et al.'s (2006) study of Mexican American adolescent boy's indicated that acculturation level contributed to the prediction of nontraditional career self-efficacy. Also, Flores et al. (2006) found that Anglo-oriented acculturation accounted for variance in educational goals.

In Navarro et al.'s (2007) study of the math/science goals of Mexican American youth, Anglo-orientation and Mexican orientation did not predict math/science past performance accomplishments. Also, Anglo-orientation and perceived social support were not associated with math/science goals. These findings suggested that when the outcome variable was limited to a particular domain (math/science goals in this case), Anglo-oriented acculturation was not a contributor. In the Flores et al. (2006) study, Anglo-oriented acculturation was a predictor of a more global outcome, educational aspirations.

Racial and ethnic identity. Helms and Piper (1994) argued that racial salience is a critical moderating variable in the career development of people of color. Racial salience has been conceptualized by these authors as the degree to which an individual believes that race defines her or his opportunities in the world. This belief, whether true or untrue, influences perceptions of access, which in turn have implications for

educational and career expectations and aspirations. Thus, the processes of racial and ethnic identity development are believed to interact considerably with the processes and outcomes of career development (Helms & Piper).

Ethnic identity formation has been distinguished as a critical developmental task for Latina/o adolescents (Phinney, 1993). Phinney and Alipuria (1996) conceptualized ethnic identity as the individual differences in “feelings of ethnic belonging and pride, a secure sense of group membership, and positive attitudes toward one’s ethnic group” (p. 142). The burgeoning area of research on ethnic identity suggested a positive link between ethnic identity achievement and vocational identity (Gushue, 2006). From a developmental framework, ethnic identity exploration and commitment coincides with age related increases in levels of cognitive functioning (Phinney, Jacoby, & Silva, 2007; Phinney & Ong, 2007). Thus, an achieved ethnic identity may reflect a higher cognitive understanding of ethnic group membership, the complexities of the interrelationships among ethnic groups (Phinney et al.), and a more crystallized sense of self (Duffy & Klingaman, 2009). This mental framework develops in parallel to the framework for an enhanced understanding of one’s vocational self and interests. Gushue (2006) explored the relation of ethnic identity to self-efficacy and outcome expectations from a social-cognitive career theory framework. From this framework, self-efficacy and outcome expectations represented two determinants of career interests. Results from a sample of 128 Latina/o ninth graders revealed that ethnic identity had a direct and positive relation to career decision-making self-efficacy and an indirect relation, mediated by self-efficacy, to career planning outcome expectations.

Research suggested that the relation between ethnic identity and other-group orientation varies between ethnic minority groups and the dominant majority. Phinney et al. (2007) found that the association between ethnic identity and intergroup attitudes was stronger for ethnic minority students (i.e., Asian American and Latina/o American), than it was for ethnic majority students (i.e., European American). This finding was particularly important as research on academic achievement points to the need for students from underrepresented racial/ethnic minority groups to develop positive attitudes toward their culture and the mainstream culture as well as significant relationships with members of both cultures (Okagaki, 2006). Indeed, empirical evidence supported the link between ethnic identity and other-group orientation for Latina/o American students and suggested that both other group relatedness and a strong sense of ethnic identity best situated students for learning (Hurtado et al., 2002).

Summary. The studies reviewed in this section point to the influence of acculturation and ethnic identity on vocational achievement for Latina/o students. The research on acculturation and ethnic identity as related to educational and vocational goals has been conducted within various theoretical frameworks such as the SCCT framework and social group identity development models. The relations between both acculturation and ethnic identity and vocational achievement were investigated in the current meta-analysis.

Contextual Moderators of Goals

In their conceptual refinement of SCCT, Lent et al. (2000) used contextual influences to refer to characteristics outside the person that enhance or constrain personal

agency (i.e., barriers and support). A review of the literature on barriers and support is provided in this section.

Barriers to educational and career development. There has been increasing attention in the field of vocational psychology to an examination of the influence both real and perceived barriers have on career development processes and outcomes for people of color (e.g., McWhirter et al., 1998). In her 1990 review, Arbona noted that Latina/o students in junior high school and high school had similar levels of vocational aspirations compared to White students, but had low expectations with regard to achieving these aspirations. Part of the reason for this disparity may be due to a greater number of perceived barriers. For example, McWhirter (1997) compared Mexican American and European American high school junior and seniors with respect to perceived barriers in the formulation and pursuit of educational and career goals. Findings indicated that Mexican American students anticipated more future barriers than did the European American students. Further, Gushue et al. (2006) found that in a sample of 126 urban Latina/o high school students, the perception of career related barriers negatively correlated with career decision self-efficacy and vocational identity. Interestingly, some of the most important concerns/barriers listed by Latina/o students included finances, study skills, and job competition, over and above ethnic discrimination, gender, or age. (Luzzo & Jenkins-Smith, 1996). Flores and O'Brien (2002) and Ojeda and Flores (2008) found that predictors of career choice prestige and educational aspirations (respectively) included perceived occupational barriers.

Support for educational and career development. In an effort to increase our understanding of how individuals of color overcome obstacles to career development

predicated on race and ethnicity, researchers have more recently begun to explore the role of support in the career development process. The concept of support has been conceived in the literature in various forms, namely as kinship support, peer support, school personnel support, school-community mentorship, and general support. McWhirter et al. (1998) found that father support had significant direct effects on educational plans and career expectations while teacher and mother support had direct effects on mediating variables predictive of career-related outcomes. Further, Flores and O'Brien's (2002) career choice model revealed that parental support was predictive of career choice prestige and career aspiration and Flores et al. (2006) found that parental support was predicted by nontraditional career self-efficacy.

Summary. The aforementioned studies point to the direct and indirect effects of perceived barriers and social support on vocational goals for Latina/o students. The relations between both barriers and support and vocational achievement were investigated in the current meta-analysis. Furthermore, SCCT uniquely posits that contextual barriers and support moderate the relation between self-efficacy beliefs and goals, and research on the moderating role of these variables hypothesized to be most proximal to goal formation was synthesized in the current study.

Demographic Variables and Gender Differences

Much of the literature on the vocational achievement of Latina/o students examined the influence of demographic variables such as gender, socioeconomic status, generational level, and parent's level of education on success. Some of this work was guided by theory and, from the perspective of social cognitive career theory for example, considered the indirect relations of these background variables on achievement. However,

other studies examined the direct and/or interactive effects of demographic variables on achievement outcomes.

Building on Farmer's (1985) model of career commitment, McWhirter et al. (1998) found that socioeconomic status was predictive of educational and career expectations. Furthermore, results from McWhirter et al.'s multi-group comparisons between Mexican American girls, Mexican American boys, and European American girls indicated that ethnic group membership was a stronger predictor than gender of educational and career expectations. Similarly, Flores et al. (2008), from the perspective of social cognitive career-theory, found no gender or generational status differences in educational expectations or aspirations. However, also employing a social-cognitive career theory framework, Ojeda and Flores (2008) found that perceived educational barriers contributed to the prediction of students' educational aspirations above and beyond the influence of gender, generation level, and parents' education level. From the same framework, Navarro et al. (2007) found that generation status was not associated with math/science past performance accomplishments and gender did not moderate the relations.

Summary. The literature reviewed above presents a complex picture of the extent to which demographic variables are predictive of vocational achievement for Latina/o students. Theorists have called into question the research which explores the direct effects of demographic variables such as generation level as this direct association may overlook the extent to which psychological constructs such as acculturation level mediate found differences. In light of this consideration, the current meta-analysis of the predictors of educational/vocational goals for Latina/o students was limited to

psychological constructs as the research questions under investigation concern estimates of zero-order associations. Furthermore, although there has been mixed support for gender [an important within group construct among Latina/o populations (Gloria & Segura-Herrera, 2004)], differences among Latina/o students on markers of educational and vocational attainment, questions about gender differences were beyond the scope of the current meta-analysis.

Summary of Section

The studies reviewed above illustrate the breadth and complexity of the literature on Latina/o student educational and vocational goals. Various SCCT paths have been tested and applied to the career development of Latina/o students across educational and developmental stages. These studies, along with studies informed by other theoretical frameworks, have examined career-relevant person and sociocultural person predictors of vocational achievement. In studies grounded in the SCCT framework, the sociocultural person predictors were posited to have an effect on educational/vocational goals mediated through self-efficacy. Additionally, a number of studies have demonstrated the importance of supports and barriers in career decision-making processes. Finally, demographic variables have been examined in an abundance of studies to the extent that they had direct, indirect, and interactive effects on educational/vocational goals.

Current Meta-Analysis

There are several reasons why a synthesis of the literature on Latina/o student vocational achievement was needed. First, meta-analysis enables the reviewer to translate the findings of independent studies to a common metric, to provide a single estimate of the strength of the relations under investigation, and to test statistically the extent to

which the studies collectively provide similar estimates of association (Multon et al., 1991). Thus, a meta-analytic review of the literature on Latina/o educational/vocational goals served to quantify the size of the association between variables that have been of most interest to vocational researchers to date (e.g., self-efficacy, acculturation, career aspiration, and career goals). Moreover, the current meta-analytic review sought to test the overall strength of the associations among variables hypothesized by SCCT to be salient in the vocational goal formation process (Lent et al., 1994; 2000). See Figure 1. In addition, statistical theory underlying meta-analysis (Hedges & Pigott, 2004) provides methods for estimating the degree to which various study characteristics accounted for variations in relations obtained across studies. In the current study, characteristics of interest with regard to the overall relations between the predictor variables and educational/vocational goals included developmental stage of sample, source of study, and type of educational/vocational goal measure.

Developmental stage of sample. In the current meta-analysis, the relative strength of the associations among the variables of interest across developmental stages was considered. As individuals gain increased self-awareness through later adolescence and early adulthood, a more realistic self-assessment may also lead to a more realistic appraisal of the environment and the impact one can have on the environment (Flores, 2009). This in turn, may lead to a decrease in the relation between career-related self-efficacy and vocational goals (Flores). Also, as students' age, they are exposed to a wider variety of career activities and pursuits that perhaps veer from culturally prescribed and/or stereotypical career activities and pursuits. This in turn, may broaden their beliefs, interests, and goals, and weaken the relations between sociocultural person variables (i.e.,

acculturation and ethnic identity) and educational/vocational goals. That is, if racial/ethnic minority students acquire more multicultural experiences and cultural flexibility through adolescence, they may broaden the range of potential careers they consider in their career development process.

Source. The effect sizes of published studies versus unpublished studies were compared. Perhaps the manner in which educational/vocational goals have been operationalized and assessed in unpublished studies is more content specific, which is more consistent with the SCCT framework than published studies (Flores, 2009). However, given that unpublished studies have not been evaluated at the same level of scrutiny as published studies, one might argue that the findings may be under- or overestimates of the true population effects.

Type of educational/ vocational goal measure. As previously discussed, vocational achievement has been measured as aspirations, expectations, career choice, and goals. Through meta-analytic techniques, reviewers can examine whether the specificity of the goal and proximity of the goal to the implementation of actual choices accounts for the mixed findings that have amassed in the literature. For example, perhaps SCCT associations were stronger for narrow domains, such as math and math/science goals, than for the more broad domains of vocational and educational goals.

Research Questions

The current study sought to determine the overall effect sizes for the associations among educational and vocational goals and career-relevant person variables, sociocultural person variables, and contextual variables. Furthermore, when available, the overall strength of the association among predictor variables hypothesized by SCCT to be

salient in the goal formation process was calculated. In this process, a series of meta-analyses were conducted to examine the following research questions:

- (1) Meta-analyses of career-relevant person variables: What was the overall effect size for the association between career-related self-efficacy and educational/vocational goals?
- (2) Meta-analyses of sociocultural person variables: What was the overall effect size for the association between acculturation and educational/vocational goals? What was the overall effect size for the association between ethnic identity and educational/vocational goals?
- (3) Meta-analyses of contextual influences: What was the overall effect size for the association between perceived barriers and educational/vocational goals? What was the overall effect size for the association between social support and educational/vocational goals?
- (4) Meta-analyses of associations purported by the SCCT model: What was the overall effect size for the association between acculturation and career-related self-efficacy? What was the overall effect size for the association between ethnic identity and career-related self-efficacy?
- (5) Research synthesis of the interactive effects of barriers and support: To what extent did the interactive effect of perceived barriers on the relation between career-related self-efficacy and educational/vocational goals generalize across studies? To what extent did the interactive effect of support on the relation between career-related self-efficacy and educational/vocational goals generalize across studies?

Additionally, unique to meta-analytic methodologies, the current study explored the moderating role of (6) type of educational/vocational goal measure (7) developmental

stage of sample, and (8) study source on the main effects for educational/vocational goals. The following research questions were of particular interest:

(6) What differences existed in the effect sizes of the examined associations for educational/vocational goals based on the type of educational/vocational goal measure used (e.g., career aspirations versus expectations)?

(7) What differences existed in the effect sizes of the examined associations for educational/vocational goals based on developmental stage of sample?

(8) What differences existed in the effect sizes of the examined associations for educational/vocational goals based on source of data?

Chapter 3: Method

Overview of Procedures Involved in the Current Meta-Analysis

The current meta-analysis proceeded using the following four major steps (see Quintana & Minami, 2006; Shibley Hyde, 2005). First, a comprehensive literature search was conducted to locate a representative sample of studies and each study was evaluated based on predetermined inclusionary criteria. Second, general study characteristics and statistics were extracted from each report, and an effect size was computed for each study. Third, a weighted average of the effect sizes was computed (weighting by sample size) to obtain an overall assessment of the direction and magnitude of the association when all studies were combined. Fourth, homogeneity analyses were conducted to determine whether the groups of effect sizes were relatively homogenous. When they were determined to be heterogeneous, the studies were partitioned into theoretically meaningful groups (identified a priori) to determine whether the effect sizes were larger for some types of studies and smaller for other types.

Synthesis Team

A diverse research team was assembled to assist in the current research synthesis, referred to as the synthesis team. The team consisted of the first author (a Latina doctoral student in counseling psychology), one White professor of counseling psychology (second author), two doctoral students in counseling psychology (one Latina and one White woman), and eight undergraduate students (five White women, two Latina women, and one Black woman).

Literature Search Process

The literature search process for the current meta-analysis was implemented in seven sequential steps (see Multon et al., 1991; Spengler et al., 2009). First, a preliminary examination and evaluation of the existing literature was conducted to clarify the topic definition. The following statement of the topic was derived: The current meta-analysis sought to examine the magnitude of the relations between career-related person variables (i.e., career-related self-efficacy), sociocultural person variables (i.e., acculturation and ethnic identity), contextual variables (i.e., barriers and support), and educational/vocational goals for Latina/o students. The following databases were determined to be appropriate sources to retrieve reports reflective of the topic definition; PsycINFO, Educational Resources Information Center (ERIC), and ProQuest Dissertations and Theses Database. Various considerations in selecting databases were made including; Disciplinary scope (in which disciplines was research on this topic being conducted? and through which reference databases was the literature of the relevant fields accessed?), access (what was available at the current academic institution?), date (what period did the topic cover?), language and country (research published in other languages and outside the U.S.?), and the inclusion of unpublished work (relevant research in the form of conference papers, unpublished manuscripts, technical reports, or other forms?).

The second step involved identifying search terms to accurately describe the topic at the appropriate level of specificity. In this process, the goal was to maximize efficiency by recalling a maximum of number of relevant sources, a minimum of identified but not relevant sources (false positives), and very few relevant but not identified sources (false negatives). To ensure consistent and inclusive vocabulary, the thesauri of the selected databases were ascertained and the following subject terms were entered into each

thesaurus; Latina/o, Hispanic, students, goals, choice, choice behavior, aspirations, expectations, educational, vocational, career, self-efficacy, acculturation, ethnic identity, barriers, and support. For each subject term, a list of narrower terms was generated by the particular thesaurus as well as related terms and the year the subject term was added to the database (see Subject Terms Table in Appendix A).

Creating search profiles to provide logical structure to the search represented the third step in conducting the comprehensive literature search. The following initial search parameters were created (note the use of Boolean operators to link concepts); Latino AND students AND career OR vocation OR education, Latino AND students AND goals OR choice OR aspirations OR expectations, Latino AND students AND self-efficacy, Latino AND students AND acculturation, Latino AND students AND ethnic identity, Latino AND students AND barriers, Latino AND students AND support, Latina AND students AND career OR vocation OR education, Latina AND students AND goals OR choice OR aspirations OR expectations, Latina AND students AND self-efficacy, Latina AND students AND acculturation, Latina AND students AND ethnic identity, Latina AND students AND barriers, Latina AND students AND support.

The main search was conducted in the fourth step (see Main Search Table in Appendix B). A document evaluation manual and corresponding document evaluation database were created by the first author for the main search (see Document Evaluation Manual in Appendix C). One member of the synthesis team was responsible for each of the three databases. The main search in PsychINFO yielded 609 total hits, 28 of which were relevant. The ERIC database search yielded 1,169 total hits, 31 of which were relevant. Finally, the ProQuest search yielded 120 dissertations, 64 of which were

relevant. Each document (e.g., article, technical report, dissertation) identified as relevant in the main search was evaluated based on predetermined inclusionary criteria (discussed in the following section), first by the synthesis team member conducting the main search and second by the first author.

Two complementary search strategies, author and citation searching, were conducted as a sixth step. The second author conducted an author search of those identified as key researchers in this area and provided an initial evaluation of each identified document. The first author provided the second evaluation. The following authors were searched; Flores, L., Gloria, A., Gushue, G., Luzzo, D., McWhirter, E., Navarro, R., and Solberg, S. Searching by author yielded 222 total hits, 27 of which were relevant. Next, citation searching was conducted by two members of the synthesis team and the first author. The reference lists of all documents obtained through the computer searches that fit initial inclusionary criteria were mined for additional published studies. This process yielded 84 total hits, 47 of which were relevant. Again, each document identified as relevant was evaluated for inclusion first by the synthesis team member conducting the citation search and second by the first author. After identifying all possible studies, forward and backward cross-referencing were conducted until no new studies were obtained. This process involved cross-checking the list of studies generated from the electronic database searches with the list of studies obtained from mining the reference lists of articles, and vice versa. Cross-referencing resulted in the identification of 121 studies that were located through more than one search strategy.

Final searches were conducted as a seventh step. This was a supplemental focused search to locate studies published in the most recent year since the study began. The same

document evaluation procedures discussed above were implemented. This process yielded 96 total hits, 12 of which were relevant.

Unpublished doctoral dissertations were included in the current meta-analysis as a precaution against publication bias; that is, the tendency for published studies to report better outcomes than unpublished studies thereby resulting in an overestimation of the true effect. Unpublished doctoral dissertations have been recognized as the best source for unpublished work for several reasons (Durlak et al., 2003). First, other types of unpublished work (i.e., technical reports, conference presentations, and file drawer studies) are both difficult to obtain and their prevalence difficult to estimate. By comparison, *Dissertation Abstracts* provides a listing of all dissertations completed each year (in American and Canadian institutions) thus the reviewer is able to gauge how many unpublished dissertations are relevant and should be sampled. Durlak et al. advise against contacting authors who have published in the field to obtain completed but as-yet unpublished work indicating that this strategy largely depends on the cooperation of the researchers being contacted. Thus, this supplemental search strategy was not implemented in the current meta-analysis.

Inclusionary criteria. The search process described above yielded 209 relevant and unique hits. Each study identified from this process was reviewed for its appropriateness by one member of the synthesis team assembled and the first author. For a study to be included, it must have met several criteria. First, the study must have included quantitative data on the variables of interest for Latina/o students. If a study did not exclusively focus on the experiences of Latina/o students (e.g., the study also included data on African Americans), the study remained eligible for inclusion provided

statistics were reported separately for a Latina/o student subsample. Second, the study must have included at least two of the following variables: (a) a measure of a career-relevant person variable (i.e., career-related self-efficacy) and/or (b) a measure of a sociocultural person variable (i.e., acculturation, ethnic identity) and/or (c) a measure of a contextual variable (i.e., perceived barriers, support) and/or (d) a measure of education and/or career expectations, aspirations, choice, and/or goals. Finally, the study must have provided sufficient information to calculate appropriate effect size estimates (i.e., correlation coefficients). All effects within the current meta-analysis were zero-order. Studies were eliminated for failing to meet one or more of these criteria. This process was consistent with best practices as outlined by Quintana and Minami (2006). Seventy-three studies (44 published studies and 29 dissertations) met initial criteria based on initial evaluations from a member of the synthesis team.

Coding Procedures

A coding protocol was developed by the first author to facilitate coding procedures. This protocol involved delineating the study characteristics of interest, drafting items (i.e., study characteristics to be coded) for the coding protocol, circulating items to the research team for feedback, and refining items based on feedback. A coding manual was created to provide detailed instruction of how to code each item and included notes about decision rules developed as the research team coded studies. For example, one decision rule stated that if Latina/o students represented a subsample of students and data were not reported separately for the variables of interest, then the document was to be removed from the coding protocol and the first author notified. See the Coding Manual in Appendix D.

The corresponding coding database was created in Excel to maximize efficiency in recording coded data. The database paralleled the coding manual in terms of sequencing and labels applied to study characteristics. For certain study characteristics, a drop down menu was provided and the coder instructed to select among options. For example, a drop down menu was provided for student population; Elementary school, middle school, high school, community college, four-year college/university, graduate/professional school, other.

With regard to training coders, first an overview of the meta-analysis was provided by the first author. Next, each item on a form and its description in the corresponding coding manual was read and discussed. For example, the construct of self-efficacy was defined [i.e., “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986, p.391)]. Self-efficacy, in contrast to self-esteem which is a more global construct, represents a constellation of self-referent beliefs connected to specific performance domains and activities. The performance domains or activities of interest in the current study were education and/or career related. The process for using the coding manual was described (i.e., correspondence between coding manual and fields in the coding database). A sample of three studies were randomly chosen to test the forms and one study was coded by each team member at a time, with each coder recording how long it took to code each study. Coding databases then were compared and discrepancies were identified and resolved by the first author who consulted the original document. The coding manual and database were revised as necessary and this process was repeated with the two additional studies until consensus was achieved. Regular meetings were held

throughout the coding process to contribute to consistency and accuracy of the information being extracted from the studies. Team meetings provided an opportunity to discuss questions that arose during independent coding.

Coding procedures took place in two sequential steps (see Spengler et al., 2009). First, each study was coded for specific study characteristics (see below) by two members of the synthesis team. Second, statistical information needed to calculate effect sizes was retrieved and coded for each study by two members of the synthesis team.

Study characteristics coding. For the each of the 73 studies indentified in the literature search, the following 53 characteristics were coded in the first coding sequence: Authors, institutional affiliation, position, year, source (i.e., peer reviewed journal articles, non peer reviewed journal articles, book chapters, convention presentations, dissertations, unpublished manuscripts, and technical reports), name of source, total sample size (number of Latina/o students in the sample), girls/women sample size (number of Latina girls/women in the sample or zero), boys/men sample size (number of Latino boys/men in the sample or zero), entire or subsample (Latina/o students represent the entire sample, a subsample with separate data, a subsample/not separate data), Latina/o sample descriptor (how does the author describe the students in terms of race/ethnicity?), student population (i.e., elementary school, middle school, high school, community college, four-year college/university, graduate/professional school, or other), setting, mean age of sample, SD of age, age range of sample, girls/women mean age, girls/women SD, girls/women range, boys/men mean age, boys/men SD, boys/men range, income, class, other indicators of SES, parent's level of education, mother's level of education, father's level of education, generation status, English language proficiency,

ability used to describe sample, ability as predictor variable, ability as outcome variable, operationalization of ability, design of study, between-groups or within-group (Latina/o students are compared to other racial/ethnic groups, Latina/o students are not compared to other racial/ethnic groups), theoretical foundation of study, and then for each variable of interest (i.e., self-efficacy, acculturation, ethnic identity, perceived barriers, social support, and goals) the name of the construct, name of the measure, self-report (yes or no), composite scale or single item, full scale alpha, and subscale alphas.

Effects coding. In the second coding sequence, the statistics that were necessary to calculate weighted effect sizes were coded (i.e., correlation coefficient and sample size). If zero-order correlations were not reported, sufficient information to compute a bivariate relationship [i.e., means, standard deviations, effect sizes (t values, f values, chi square values), and exact p values] between the two variables of interest was recorded. Thirty-three studies were eliminated in the first coding sequence for not meeting inclusionary criteria; that is, the statistics of interest were not reported separately for Latina/o students if the sample was not exclusively Latina/o students, the variables that were associated were not the associations of interest in the current study (e.g., career self-efficacy with barriers or support, sociocultural variables with barriers or support), educational and/or career outcomes were by parents' or other important adults' report, and finally, upon closer examination of the measures, they were not capturing the construct of interest (e.g., cultural congruity or cultural fit with campus environment was not considered to represent acculturation as conceptualized in the current study). The available statistical information for the variables of interest was thus extracted from 40 studies of the original 73. The first author then consulted the Handbook of Research

Synthesis (Cooper & Hedges, 1994) to locate formulas to conduct the necessary conversions. It was not possible to do so with the statistical information reported by study authors in 15 studies (e.g., failed to report the covariance between the two variables of interest in addition to the standard deviation of each variable or the degrees of freedom for paired groups). Thus, 25 studies (26 samples) remained in the final sample of studies (16 published studies and 9 dissertations). Internal consistency reliability estimates, means, and standard deviations of the measures of interest also were recorded. This procedure provided a second coding of internal consistency reliability of the measures (first coding took place in the first coding sequence).

Coder agreement. Each study was coded independently by two members of the synthesis team who recorded their initial codes in a database separate from the meta-analysis database. Codes that had 100% agreement from both raters were then directly recorded in the meta-analysis database. Out of the 25 studies, there was a 100% agreement rate between both raters for 15 studies. For the remaining 10 studies, there was at least one discrepant code. Discrepancies were addressed by the first author who consulted the original document. Both the meta-analysis database and the initial coding database were recorded and saved in a single flat file structure (i.e., all data were stored in a single location).

Chapter 4: Results

Common Effect-Size Metric

To aggregate data across studies, statistical information reported from individual studies first must be converted into a common effect-size metric. The primary effect-size metric used in the current meta-analysis was the Pearson Product-Moment Correlation Coefficient (r) given that the research questions under investigation concerned associations between two continuous variables (Rosnow, Rosenthal, & Rubin, 2000). As is well noted, r can be converted into the percentage of variance that the predictor variable explains in the criterion variable (i.e., r^2). According to Cohen (1988), an r^2 less than .09 ($r = .3$) represents a small effect. An r^2 between .09 ($r = .3$) and .25 ($r = .5$) represents a medium effect and a large effect occurs when r^2 is greater than .25 ($r = .5$). If correlations were not reported in a particular study, an attempt to calculate indices of association from reported test statistics or p values was made by consulting the Handbook of Research Synthesis (Cooper & Hedges, 1994) for the necessary formulas. Fifteen studies that were coded in the first coding sequence were omitted in the second coding sequence because there was insufficient statistical information provided by the authors to convert the reported indices of association into a correlation.

Dependency. When several associations are measured within a single sample, the effect sizes are not independent. To address violations of independence, each association within a study was first coded as if it were an independent estimate of the relation between the predictor variable of interest and the particular goal outcome. For example, Gloria et al. (2005) produced comparisons between persistence intentions and two forms of self-efficacy and two correlations were extracted; one representing the relation

between persistence intentions and college self-efficacy and one representing the relation between persistence intentions and educational degree behaviors self-efficacy. However, when estimating the overall relation between goal outcomes and career-related self-efficacy, the average of the two correlations was used so that the sample contributed only one overall association to the analysis. This process allowed for the retention of as much data as possible from each study, while maintaining any violations of independence to a minimum (Cooper, 1998). With regard to non-independent studies, there were no cases in the current meta-analysis in which multiple studies were published with a single sample.

Homogeneity of Effect Sizes

The variability of the effect size estimate provides the basis for determining the significance of the estimate (Quintana & Minami, 2006). Other sources of variance in addition to error variance may be influencing the size of the effect. Thus, it is an important step in meta-analysis to test for the homogeneity of effect sizes across sampled studies to determine if there are sub groupings of studies to be partitioned and analyzed separately. The Q statistic is used to test if the variability observed among the effect sizes is consistent with what is expected due to sampling error within the distribution of effect sizes (Hedges & Olkin, 1985). A significant Q [X^2 distribution with $k - 1$ degrees of freedom (where k = number of studies)] statistic indicated the possibility of unexamined systematic differences among the studies. As recommended by Quintana and Minami, the following two steps were taken if a Q statistic reached significance; (a) the distribution of effect sizes was examined for possible outliers and, if present, excluded from the analysis and (b) tests of moderator variables identified a priori were conducted to account for the

variability. Example moderators (i.e., sources of systematic difference) examined in the current meta-analysis included goal outcome and developmental stage of sample.

Aggregation Procedures

Determining whether to adopt a fixed- or random-effects model when aggregating effect sizes is a critical component of meta-analysis (Quintana & Minami, 2006). The current study adopted a random-effects model to aggregate effect sizes and a mixed-effects model for the moderator analyses (i.e, involving a random-effects model for the aggregated effect size and a fixed effects model to determine the presence of a moderator within sets of effect sizes).

When using the fixed-effects model, the researcher is primarily interested in the observed effect among the samples studied and presumes a single population effect from which each study was drawn. In this case, the researcher is primarily interested in estimating an effect size for the specific sample of studies but not studies that are not included among the observed studies. By contrast, in the random-effects model, the researcher intends to generalize to the population of studies that is larger than the observed studies and may vary from them (Quintana & Minami). Thus, the random-effects model presumes a heterogeneous set of population parameters across studies (Hedges & Vevea, 1998).

Best practices for meta-analysis points to the random-effects model as the favored approach (e.g. Field, 2001; National Research Council, 1992) as random-effects models incorporate more accurate assumptions when compared to fixed effects models. In cases where there is more variability among effect sizes, the random-effects model is more conservative in that the possibility of rejecting the null hypothesis is reduced. The random-effects model incorporates in its effect-size estimate any variability in the data

other than what is expected from sampling error. Thus, if the Q statistic is significant in a random-effects model, the study sampling variance is considered significantly different from zero and this variance is incorporated throughout the analysis. Based on these considerations, we adopted a random effects model to compute all relevant confidence intervals and a mixed-effects model to examine moderators within sets of effect sizes.

Description of Study Characteristics

There were 26 independent samples from 25 studies (16 journal articles, nine dissertations). Sample sizes for each study ranged from 30 to 1,466 with a total sample size of 5,358 ($M = 214.32$, $SD = 277.52$). Girls/women represented 53% of the sample while boys/men represented 47% of the sample. Seventeen studies were conducted on precollege students and eight on college students. All of the studies were published between 1999 and 2008. Studies were published in the following sources; Journal of Counseling Psychology (four), Hispanic Journal of Behavioral Sciences (three), The Career Development Quarterly (two), The Journal of Career Assessment (two), The Journal of Vocational Behavior (two), Family Relations (one), The Journal of Educational Research (one), The Journal of Multicultural Counseling (one), and Dissertation Abstracts International (nine). Eight studies applied a Social Cognitive Career Theory framework, four applied a social/ecological perspective, three applied Tinto's Model of Persistence, two applied Ogbu's Cultural Model of Schooling, the remaining studies integrated multiple frameworks not specified here (e.g., Acculturation Theory, Cultural Capital) or were not grounded in a theory (three studies). With regard to racial/ethnic descriptor, students were identified as "Latina/o" (10 studies), exclusively "Mexican/Mexican American/Chicano" (eight studies), "Hispanic" (three studies),

“Hispanic/Mexican” (one study), “ethnic heritage in Mexico, Central America, and South America” (one study), predominantly of Mexican heritage (one study), and predominantly of Puerto Rican heritage (one study). Sixteen studies reported on students from the Southwestern or Midwestern regions of the U.S., four studies from the Eastern region of the U.S., one study from the Southeastern region, and the region was not specified in four studies.

With regard to generation status, 13 studies reported on samples that were predominantly second generation Latina/o Americans, four studies reported on samples that were predominantly first generation Latina/o Americans, one study reported an even range for first through fifth generation, and the remaining four studies did not report this information. Twelve studies reported on students from low income backgrounds (as defined by parent’s median income at the poverty level and/or meeting federal criteria for free or reduced lunch). An indication of academic ability and/or performance was provided in 6 studies as a predictor variable, in five studies to describe the sample, and in two studies as an outcome variable. In all cases, GPA was used as the marker of ability/performance.

Determining the Mean Effects

Mean effect sizes were calculated following standard methods (e.g., Rosenthal, 1995; Schafer, 1999). To obtain the mean effect size or unbiased correlation between the predictor and outcome variable of interest (r_u) for each research question, all correlations were first transformed to a Fisher’s Z with standard r -to- z transformation tables. Next, a weighted estimate of the common correlation across all samples (Z_{++}) was computed with a formula provided by Hedges and Olkin (1985). Then, to test the hypothesis that

Z_{++} differs from zero, $Z_{++} (N - 3K)^{1/2}$ was computed in which N was the total number of participants across all samples. Significance was tested against a two-tailed critical value of the standard normal curve (i.e., $p < .05$, $z = 1.96$). Finally, Z_{++} was converted back to its associated r (r_u) with standard r -to- z transformation tables. In addition to calculating both the weighted and unweighted correlation coefficients, the following were calculated for each bivariate relation: (a) the 95% confidence interval around r_u , (b) the Q-statistic, and (d) the result of the file drawer analysis which indicated the number of unfound studies with $r = 0$ (null results) that would be necessary to bring the mean r down to the lowest level that would be practically significant [set at .10 in the current study based on guidelines by Diener, Hilsenroth, and Weinberger (2008)].

Meta-analysis only required two bivariate effects for the computation of relevant statistics (e.g. population correlations), however a k of three had been cited as the recommended number of source studies from which population estimates could be computed (e.g. Hedges & Pigott, 2004), and the estimates were thought to become more precise as sample size increased. Significant results were indicated by effects wherein the confidence interval did not include zero. Although both weighted and unweighted effect sizes for each association were reported, all substantive discussion was in reference to weighted effect sizes.

Unbiased effect size estimates for goal outcomes. Research questions one through three focused on the impact of the career-relevant person variable of self-efficacy, sociocultural person variables (i.e., acculturation and ethnic identity), and contextual variables (i.e., barriers and support) on educational/vocational goals. Summary data is presented in Table 1 and delineated across the conceptual groupings developed

based on the SCCT model. The number of participants utilized to estimate each population correlation ranged from 301 to 2,629 and the number of effect sizes utilized for population estimations ranged from three to 15.

A positive unbiased effect size estimate $r_u = .33$ was found for the relation between career-related self-efficacy and educational/vocational goals. Two of the sociocultural person variables also had a positive association with goals, with an unbiased effect size estimate of $r_u = .22$ for Anglo acculturation and $r_u = .22$ for ethnic identity. For Latino acculturation, findings for the direction of the association were mixed with three of the studies reporting a negative association and three reporting a positive association. Because unbiased effect size estimates are based in the absolute value of the association, the strength of the association remained determinable despite contrasting results for the direction of the association. The absolute value of the unbiased effect size estimate was $r_u = .14$ for Latino acculturation. With regard to the contextual variables of support from an important adult and support from peers, the unbiased effect size estimates were $r_u = .20$ and $r_u = .14$, respectively. Both associations were in the positive direction. A negative association was found for the contextual variable of barriers, with an unbiased effect size estimate of $r_u = -.24$. Finally, an unbiased effect size estimate was calculated for the person inputs of socioeconomic status (SES), parent education, and generation status (absolute value), these ranged from $r_u = .09$ to $r_u = .14$. Both SES and parent education had a positive association with goals while there were mixed findings for direction of the association between generation status and goals (two studies reported a positive direction and two reported a negative direction). All effects were significant as shown by the 95% confidence intervals and the associated significance test (Z score and corresponding p

value). Following the guidelines of Cohen (1988), these effects were interpreted as ranging between small to medium.

Homogeneity of effect sizes. Calculations of the homogeneity statistic Q_T revealed significant heterogeneity among effect sizes for the associations between goals and the following predictors; self-efficacy, Anglo acculturation, barriers, support from adult, and support from peers. Moderation analyses based on categorical models are discussed in the following section and summary data are presented in Tables 3 through Table 5.

Table 1

Main Effects for Goal Outcomes

Correlates of Goals	k	Total n	Mean r	Weighted Mean r	Z	95% CI	Q_T	File Drawer
<i>Career-relevant Person</i>								
Self-efficacy	15	2,629	.32	.33	7.75*	.25, .40	63.70**	30.85
<i>Sociocultural Person</i>								
Anglo Acculturation	7	1,681	.24	.22	5.78*	.15, .29	13.16**	6.93
Latino Acculturation	6	1,552	.17	.14	4.65 *	.08, .20	6.67	2.08
Ethnic Identity	3	301	.26	.22	3.88*	.11, .33	.90	3.71
<i>Contextual</i>								
Barriers	5	1,163	-.23	-.24	-2.29*	-.04, -.42	48.33**	3.04
Support from Adult	11	2,057	.22	.20	5.44*	.13, .27	24.99**	8.03
Support from Peers	7	1,073	.18	.14	2.71*	.04, .24	14.81**	2.79
<i>Demographic</i>								
SES	4	2,151	.11	.12	3.81*	.06, .19	4.47	1.60
Parent Education	6	2,454	.15	.14	5.43*	.09, .20	6.45	2.35
Generation Status	4	905	.10	.09	2.60 *	.02, .15	2.25	----

Note. Random effects model utilized for all CI estimates.

*All z scores were significant $p < .05$

**Indicates significant heterogeneity

Unbiased effect size estimates for self-efficacy. Research question four focused on associations between the career relevant person variable of self-efficacy and the sociocultural person variables of acculturation (both Anglo and Latino) and ethnic identity. These associations are uniquely purported by the SCCT model and considered to

be salient to the goal formation process. Summary data are presented in Table 2. The number of participants utilized to estimate each population correlation ranged from 523 to 1,812 and the number of effect sizes utilized for population estimations ranged from five to eight.

A positive unbiased effect size estimate $r_u = .20$ was found for the relation between Anglo acculturation and career-related self-efficacy. Ethnic identity also had a positive association with career-related self-efficacy, with an unbiased effect size estimate of $r_u = .26$. For Latino acculturation, findings for the direction of the association were again mixed with four of the studies reporting a positive association and three reporting a negative association. The absolute value of the unbiased effect size estimate was $r_u = .10$ for Latino acculturation. All effects were significant as shown by the 95% confidence intervals and the associated significance test (Z score and corresponding p value). Following the guidelines of Cohen (1988), these effects were interpreted as small.

Homogeneity of effect sizes. Calculations of the homogeneity statistic Q_T revealed significant heterogeneity among effect sizes for the association between Anglo acculturation and career-related self-efficacy.

Table 2

Main Effects for Self-efficacy

Correlates of Self-efficacy	k	Total n	Mean r	Weighted Mean r	Z	95% CI	Q_T	File Drawer
<i>Sociocultural Person</i>								
Anglo Acculturation	8	1,812	.21	.20	4.30*	.11, .29	25.67**	6.19
Latino Acculturation	7	1,683	.11	.10	4.05 *	.05, .15	6.05	----
Ethnic Identity	5	523	.25	.26	6.05*	.18,.34	2.08	8.05

Note. Random effects model utilized for all CI estimates.

*All z scores were significant $p < .05$

**Indicates significant heterogeneity

Determining the Presence of Moderator Variables

To determine whether studies shared a common effect size, the homogeneity of all sets of effect sizes were tested using the Q statistic as suggested by Hedges and Pigott (2004). As noted in the preceding section, the Q statistic is distributed as a X^2 variable in which the degrees of freedom are based on the number of studies in the analysis minus one. The Q statistic examines if the variability of effect sizes produced by a group of studies is greater than one would expect beyond the contribution of sampling error. This statistic is often described as a homogeneity test because it can be interpreted as determining if a group of independent studies produces a homogenous (i.e., common) estimate of the population effect. Alternatively, the results also could suggest that study outcomes are influenced by more than chance or sampling error. This finding would indicate that there were one or more possible moderators among the studies.

The statistical procedure used to test for moderator effects in the current study was analogous to a weighted ANOVA because the moderator variables of interest were categorical (see Quintana & Minami, 2006). Test of categorical models involved first partitioning the studies into different classes on the basis of the sample characteristics (i.e., developmental stage of students) and study characteristics (i.e., type of goal measure used and study source) identified a priori and then calculating a weighted estimate of the overall effect size within each class using a random-effects model. Next, the homogeneity of effect size estimates across classes was then tested by using the Q_B statistic as recommended by Hedges and Olkin (1985). This statistic is distributed as a X^2 variable in which the degrees of freedom are based on the number of classes in the analysis minus one. A significant Q_B suggested that the effect size estimates differed across classes and

that the study characteristic identified might be an important moderator of effect size estimates, provided that, in subsequent tests of within-class effect size variability, the effect size estimates within classes were found to be homogenous.

Thus, the final step involved calculating for each class a within-class homogeneity statistic, Q_w , which is distributed as a X^2 variable in which the degrees of freedom are based on the number of effect sizes in the analysis minus the number of classes. A failure to reject the null hypothesis of no within-class effect size variability coupled with a significant Q_B suggested that the identified study characteristic provided an adequate model of effect size variability because the effect sizes differed across classes and were homogenous within classes. By contrast, a significant Q_w suggested that the study characteristics did not provide a completely adequate moderator because effect sizes remained heterogeneous within classes.

Furthermore, when the moderator variable was dichotomous (e.g., precollege vs. college), the omnibus test was used to evaluate the statistical difference between the two groups (Quintana & Minami, 2006). However, when the moderator variables were not dichotomous (e.g., five classes of goal measures), post hoc comparisons using Bonferroni adjustment were performed to determine where the contrasts lied and ensure that the chance of committing a Type I error was controlled at a preset significance level of .05 (Hedges & Vevea, 1998; Quintana & Minami).

To be included in this subset of analyses, a construct must have met two criteria: (a) at least two effect sizes within each methodological subcategory (e.g., at least two effects from published studies and two effects from unpublished studies) to allow for estimations, and (b) a significant Q-statistic to demonstrate sufficient heterogeneity. Five

constructs met these criteria to assess the moderating effects of type of goal measure on the associations between the predictors and goals; these included the career-relevant person variable of career-related self-efficacy, the sociocultural person variable of Anglo acculturation, and the contextual variables of barriers, adult support, and peer support. Three constructs met the criteria to assess the moderating effects of developmental stage of sample on the associations between the predictors and goals; these included career-related self-efficacy, barriers and adult support. Finally, four constructs met these criteria to assess the moderating effects of study source on the associations between the predictors and goals.

Tests of categorical models for type of goal measure. Goals measures were partitioned into methodological classes based on the type of measure as coded in the first coding sequence. The goal measures were partitioned into groups by the first author and cross-checked with second author. Five distinct classes were identified; these included educational/vocational aspirations, educational/vocational expectations, persistence intentions, math/science goals, and nontraditional career goals. Inspection of outliers revealed one outlier in the effect sizes for career-related self-efficacy with aspirations, Anglo acculturation with aspirations, and adult support with persistence. As recommended by Quintana and Minami (2006), these outliers were removed in the moderation analyses. Methodological classes were omitted if they did not have at least two effect size estimates. Table 3 presents tests of these categorical models.

Results indicated that the overall relations with goals differed depending on type of goal measure. Significant between-class effects were found for the relations between self-efficacy and goals [$Q_b(4) = 41.02, p < .05$], barriers and goals [$Q_b(1) = 43.70, p <$

.05], and adult support and goals [$Q_b(2) = 6.21, p < .05$], while the within-class effects were not significant. This indicated the type of goal measure provided an adequate model of the variability among effect sizes. The weighted-mean correlations between self-efficacy and goals were significant, including aspirations ($r_u = .13$), expectations ($r_u = .29$), persistence intentions ($r_u = .34$), math/science goals ($r_u = .39$), and nontraditional career goals ($r_u = .17$). Post hoc comparisons using Bonferonni adjustment revealed significant effect size differences for the relations between career-related self-efficacy and the following groupings (presented in order of decreasing magnitude); math/science goals and persistence intentions ($p < .01$), expectations and nontraditional career goals ($p < .01$), and aspirations ($p < .01$). The weighted-mean correlations between barriers and goals were significant for persistence intentions ($r_u = -.48$), but not nontraditional career goals. Finally, the weighted-mean correlations between adult support and goals were significant and statistically different as indicated by post hoc comparisons using Bonferonni adjustment ($p < .01$). The weighted-mean correlations are presented here in order of decreasing magnitude, expectations ($r_u = .33$), persistence intentions ($r_u = .30$), aspirations ($r_u = .16$).

Table 3

Moderating Effects of Type of Goal Measure on Self-efficacy, Anglo Acculturation, Barriers, Adult Support and Peer Support with Goals

Correlates of Goals	Methodology	k	Total n	Mean <i>r</i>	Weighted Mean <i>r</i>	Z	95% CI	Q _w	File Drawer
Q _B (4) = 41.02*									
Self-efficacy	Aspirations	3	582	.14	.13	3.05*	.04,.20	1.49	.80
	Expectations	2	218	.28	.29	4.20*	.16,.41	1.35	3.78
	Persistence Int	6	702	.34	.34	9.13*	.27,.40	6.18	13.99
	Math/Science	2	928	.38	.39	9.48*	.32,.46	1.36	2.98
	Nontraditional	2	703	.17	.17	4.54*	.10,.24	.07	1.41
Q _B (2) = 5.10									
Anglo Acculturation	Aspirations	2	335	.35	.32	5.98*	.22,.41	1.63	4.34
	Expectations	2	218	.34	.32	4.85*	.20,.44	1.89	4.39
	Nontraditional	2	703	.20	.20	5.22*	.12,.27	.92	1.92
Q _B (1) = 43.70*									
Barriers	Persistence Intentions	2	274	-.46	-.48	-8.54*	-.38,-.57	1.44	7.53
	Nontraditional	2	703	-.05	-.05	-1.34	-.02,.12	.28	-.99
Q _B (2) = 6.21*									
Adult Support	Aspirations	3	523	.24	.16	3.77*	.08,.25	2.07	1.96
	Expectations	2	159	.34	.33	4.27*	.18,.46	.00	.34
	Persistence Int	3	287	.30	.30	5.24*	.19,.41	.18	6.12
Q _B (1) = 1.82									
Peer Support	Aspirations	2	159	.33	.26	3.31*	.11,.40	1.37	3.23
	Persistence Int	2	195	.13	.12	1.72	-.02,.26	1.10	.48

Note. Random effects model utilized for all CI estimates.

*All z scores were significant $p < .05$

**Indicates significant heterogeneity

Tests of categorical models for developmental stage of sample. Studies were partitioned into methodological classes based on the developmental stage of the sample as coded in the first coding sequence. Two distinct classes were identified; these included precollege and college. Inspection of outliers revealed no outliers within methodological classes. Moderator analyses were not conducted if there were not at least two effect size estimates within each developmental stage. Table 4 presents tests of these categorical models. Results indicated that the overall relations between barriers and goals differed depending on the developmental stage of the sample. Significant between-class effects were found for this association [$Q_b(1) = 44.47, p < .05$] while the within-class effects were not significant. The weighted-mean correlations between barriers and goals were significant for the college samples ($r_u = -.48$) but not for the precollege samples.

Table 4

Moderating Effects of Developmental Stage of Sample on Self-efficacy, Barriers, and Adult Support with Goals

Correlates of Goals	Methodology	k	Total n	Mean <i>r</i>	Weighted Mean <i>r</i>	Z	95% CI	Q _w	File Drawer
Q _B (1) = .82									
Self-efficacy	Precollege	11	2,115	.31	.30	14.36*	.27,.34	59.17**	21.69
	College	4	514	.36	.34	8.09*	.26,.42	3.81	9.63
Q _B (1) = 44.47*									
Barriers	Precollege	3	889	-.08	-.06	-1.89	-.00,.13	3.82	-1.09
	College	2	274	-.46	-.48	-8.54*	.38,.57	1.44	7.53
Q _B (1) = .41									
Adult Support	Precollege	9	1,769	.23	.18	7.60*	.13,.23	19.16**	7.11
	College	2	285	.18	.14	2.29*	.02,.25	5.27**	.69

Note. Random effects model utilized for all CI estimates.

*All z scores were significant $p < .05$

**Indicates significant heterogeneity

Tests of categorical models for study source. Studies were partitioned into methodological classes based on study source as coded in the first coding sequence. Two distinct classes were identified, published and unpublished. Inspection of outliers identified revealed no outliers within methodological classes. Moderator analyses were not conducted if there were not at least two effect size estimates within each study source. Table 5 presents tests of these categorical models. Results indicated that the overall relations with goals differed depending on study source. Significant between-class effects were found for the relations between career-related self-efficacy and goals [$Q_b(1) = 9.64, p < .05$], adult support and goals [$Q_b(1) = 4.52, p < .05$], and peer support and goals [$Q_b(1) = 6.00, p < .05$]. Moreover, the within-class effects also were significant for self-efficacy and the published class for adult support and peer support. The weighted-mean correlations between self-efficacy and goals were significant, including $r_u = .28$ published studies and $r_u = .41$ for unpublished studies. The weighted-mean correlations between adult support and goals were significant, including $r_u = .15$ for published and $r_u = .27$ for unpublished studies. Finally, the weighted-mean correlations between peer support and goals were significant including for $r_u = .10$ published studies and $r_u = .27$ for unpublished studies.

Table 5

Moderating Effects of Study Source on Self-efficacy, Anglo Acculturation, Adult Support and Peer Support with Goals

Correlates of Goals	Methodology	k	Total n	Mean <i>r</i>	Weighted Mean <i>r</i>	Z	95% CI	Q _w	File Drawer
Q _B (1) = 9.64*									
Self-efficacy	Published	11	2,066	.31	.28	13.18*	.24,.32	42.11**	19.73
	Unpublished	4	563	.36	.41	10.25*	.34,.48	12.57**	12.09
Q _B (1) = .80									
Anglo Acculturation	Published	5	1,306	.24	.19	6.87*	.14,.24	11.02**	4.38
	Unpublished	2	375	.22	.24	4.70*	.14,.33	1.32	2.77
Q _B (1) = 4.52*									
Adult Support	Published	7	1,710	.19	.15	6.40*	.11,.20	19.88**	3.70
	Unpublished	4	347	.29	.27	5.11*	.17,.37	.85	6.89
Q _B (1) = 6.00*									
Peer Support	Published	4	818	.11	.10	2.89*	.03,.17	8.42**	.01
	Unpublished	3	255	.28	.27	4.30*	.15,.38	.80	5.01

Note. Random effects model utilized for all CI estimates.

*All z scores were significant $p < .05$

**Indicates significant heterogeneity

Research Synthesis of Contextual Moderators: Barriers and Support

The meta-analytic procedures described above were unable to incorporate the potential moderators of barriers and support on the link between career-relevant person variables and educational/vocational goals because meta-analysis systematically assesses only individual effects (Rosenthal & DiMatteo, 2001). Thus, the effects of such variables were examined through a process of research synthesis (see Cooper, 1998). To be included in the synthesis, studies must have contained statistics assessing the interactive effect between career-relevant person variables (i.e., career-related self-efficacy) and the moderator variable (i.e., barriers and support) and educational/vocational goal outcomes (i.e., aspirations, expectations, choice, and goals).

The total number of studies that assessed each of these relations was two (Flores & O'Brien, 2002; Navarro et al., 2007). Flores and O'Brien examined the extent to which relations between nontraditional career self-efficacy and career choice traditionality, prestige, and aspirations were attenuated by both parental support and perceived occupational barriers. Navarro and colleagues (2007) examined the extent to which relations between math/science self-efficacy and math/science goal intentions were attenuated by support from parents, teachers, classmates, and close friends. In both studies, career-related self-efficacy was restricted to a particular domain, math/science activities or nontraditional career related tasks, and found to be a significant predictor of domain specific goals (math/science goals and choice traditionality). Further, parental support was assessed in both studies and found to be a significant moderator, as hypothesized by SCCT. Navarro and colleagues further included an assessment of teachers, classmates, and close friends, these supports were not significant moderators.

With regard to perception of barriers, as hypothesized by SCCT, this was a significant moderator of the relations between career-related self-efficacy and choice prestige but not career choice traditionality or career aspirations. Thus, in two studies, parental support appeared to be the most consistent moderator of the relation between career-related self-efficacy and educational/vocational goal outcomes.

Chapter 5: Discussion

Through meta-analytic methodologies, the current study sought to examine the magnitude of the overall relations between career-relevant person variables (i.e., career-related self-efficacy), sociocultural person variables (i.e., acculturation and ethnic identity), and contextual variables (i.e., barriers and support) and educational/vocational goals for Latina/o students. Findings indicated that, across various study and sample characteristics, effect sizes were small for all the variables examined with the exception of career-related self-efficacy which had a medium effect. Further, these relations were moderated by type of goal measure, developmental stage of the sample, and study source. The current meta-analysis also found a small effect for the relations between career-related self-efficacy and sociocultural person variables.

Meta-analyses of the Main Effects for Educational/Vocational Goals.

Meta-analytic procedures allowed for the calculation of the magnitude of the overall relations between educational/vocational goals and career-relevant person, sociocultural person, and contextual predictor variables. The current investigation provided support for the facilitating relations between career-related self-efficacy, Anglo acculturation, ethnic identity, and support from an important adult (i.e., parent, mentor, school personnel) as hypothesized by SCCT. Across various types of goal measures, student samples, and study sources, these variables individually accounted for 11% (career-related self-efficacy), 5% (Anglo acculturation and ethnic identity), and 4% (support from important adult) of the variance in educational/vocational goals. Moreover, the current investigation provided support for the hindering relation between perception of barriers and educational/vocational goals, as hypothesized by SCCT. Again, across

various types of goal measures, student samples, and study sources, perception of barriers accounted for 6% of the variance in educational/vocational goals. Also, Latino acculturation, support from peers, and the demographic variables (i.e., socioeconomic status, parent's level of education, and generation status) accounted for 2% or less of the variance in educational/vocational goals. Moreover, the direction of the effect for both Latino acculturation and generation status was indeterminable. While all the variables examined in the meta-analysis of main effects emerged as significant predictors, the amount of variance unaccounted for by these variables was considerable. Thus, this discussion concludes with recommendations to expand traditional career decision-making models by incorporating an ecological perspective to more fully capture the experiences of Latina/o students.

In addition to these overall effect size estimates, the current meta-analysis revealed significant heterogeneity among effect size estimates for career-related self-efficacy, Anglo acculturation, perception of barriers, and support from both important adults and peers. Tests of categorical models were conducted to determine if the relations of these variables to goals varied across study characteristics (i.e., type of goal measure and study source) and sample characteristics (i.e., developmental stage of the sample). What follows is a discussion and interpretation of the moderator effects, including implications for research and practice.

Moderating Effects of Study and Sample Characteristics: Implications for Research and Practice

The current analyses of potential moderator variables produced several findings of relevance to the goal formation process for Latina/o students as posited by SCCT. Type

of goal measure was found to moderate the effects of career-related self-efficacy, perception of barriers, and support from an important adult on educational/vocational goals. Also, the main effect of perception of barriers on educational/vocational goals was moderated by developmental stage of sample. Finally, study source moderated the effects of career-related self-efficacy, support from an important adult, and support from peers. These findings have implications for further research and interventions that may be derived from an SCCT framework, and are discussed in this section.

Self-efficacy to educational/vocational goals, moderated by type of goal measure. In the SCCT literature, personal goals have been operationalized as educational/vocational aspirations, expectations, choices, and goals (both global and domain specific). Domain specific goals examined in the current meta-analysis were math/science goals and nontraditional career goals. The application of distinct terms relates to the degree of specificity of the goal and the proximity of the goal to actual choice (Lent et. al., 1994). For example, career aspirations have been referred to as career goals for the future when they are assessed remotely in time from actual career entry and do not demand commitment or have immediate consequences. By contrast, career goals have been defined as expressed choices, plans, or decisions when they involve specific intentions (e.g. determination to engage in a particular field or role), are assessed more proximally to career entry, and require a commitment (Lent et al.). The analysis of type of educational/vocational goal measure as a moderator in the current study revealed that this served as an adequate model of effect size variance (i.e., the variance between classes was significant while the variance within classes was not significant) for career-related self-efficacy, perception of barriers, and support from an important adult.

Specifically, stronger relations for career-related self-efficacy were observed when effect sizes were estimated from math/science goal measures (accounted for 15% of the variance) as well as measures of persistence intentions (accounted for 12% of the variance). The second strongest observed relations for career-related self-efficacy were those between expectations as well as nontraditional career goals. Finally, the weakest relation was observed between career-related self-efficacy and aspirations.

This pattern of findings supported the domain-specific nature of self-efficacy beliefs and highlighted the predictive efficiency of correspondence between assessments of self-efficacy and assessments of goals. Bandura (1986) posited that stronger associations would be obtained when measures of self-efficacy corresponded with the particular outcome criteria and when the level of measurement involved specific and proximal tasks as opposed to more vague and distal tasks. One study included in the current meta-analysis examined the association between mathematics self-efficacy and students' intentions to take additional mathematics courses (Stevens et al., 2006). Similarly, another study examined the extent to which math/science self-efficacy predicted math/science goal intentions (Navarro et al., 2007). Given that self-efficacy represents a constellation of self-referent beliefs connected to specific performance domains and activities (Bandura), it was not surprising that associations would be stronger between self-efficacy goal measures of a parallel domain versus more global outcomes (e.g., intentions to go to college). This finding was consistent with findings from Multon and colleagues' (1991) meta-analysis on the relations between self-efficacy beliefs and academic outcomes. Across 38 studies, type of performance measure was found to moderate the relations between self-efficacy and academic performance. Similar

to the current findings, associations were stronger between indices of self-efficacy and basic skills measures of performance, which were the most concordant. Thus, future researchers should consider the magnitude of the impact of self-efficacy on a given outcome in light of the congruence between measures. An alternative interpretation, however, is that parallel measures were capitalizing on shared method variance; that is, both were self-report and the item content was parallel. Additional research is needed on the construct validity of domain specific self-efficacy and domain specific goals. When removing or accounting for shared method variance, are predictions equally as robust?

With regard to implications for practice, students could be further aided in their goal formation process by distilling global goals into smaller goals that are congruent with current skills and more proximal in time to intended action. Global goals, such as becoming a lawyer, are perhaps more likely to be realized if they are subdivided into clear and specific goals, rendering them more manageable (e.g., enrolling in a class to prepare for the LSAT, taking prelaw courses). Reframing larger and more distal goals into more proximal sub goals further allows a student to more readily assess progress toward the goal (Lent, 2005). Thus, encouraging students to frame their educational and vocational goals in terms that more directly map onto their self-referent beliefs about their performance abilities in specific activities (i.e., more clear, specific, and proximal) is likely to have a facilitative effect.

The finding that self-efficacy had a stronger association with expectations when compared to aspirations suggested that interventions implemented to enhance self-efficacy are likely to have a greater impact on expectations relative to aspirations. This is an important finding in light of the discrepancy between expectations and aspirations that

has been noted in the literature on racial/ethnic minority student achievement (Fouad & Byars-Winston, 2005). In their meta-analysis, Fouad and Byars-Winston found that race/ethnicity did not influence career aspirations (i.e., there were no found differences between racial/ethnic minority students and White students with regard to aspirations), but did have an influence on perceptions of opportunities and barriers. Thus, aspirations, which refer to what students' believe they can achieve in an ideal sense, tend to be undifferentiated across racial/ethnic groups. Expectations, by contrast, refer to what students' believe they can achieve in their present life circumstances and tend to be lower for racial/ethnic minority students.

The current study indicated a stronger association between self-appraisal of ability and what Latina/o students expect of themselves in reality versus in optimal circumstances (aspirations). Both Flores et al. (2008) and Ibanez (2002) examined the relations between career-related self-efficacy and both educational/career expectations and educational/career aspirations with Latina/o students. In both these studies as in the current study, the effect size appeared larger [as interpreted following the guideline of Cohen (1988)] for expectations when compared to aspirations. Furthermore, McWhirter et al. (1998) specified educational and career expectations, in contrast to aspirations, were more closely associated with educational and career-related outcomes for Mexican American students. Citing literature that suggested that racial/ethnic minority students have lower educational and career related expectations than aspirations (e.g., Smith, 1983), these authors noted the importance of enhancing Latina/o students' expectations. Further research on educational/career expectations using structural models building on career-related self-efficacy would be fruitful. Under an individual effects model (i.e.,

zero-order correlations), the current study provided support for a stronger relation between self-efficacy and expectations when compared to aspirations. This finding points to interventions centered on reinforcing self-efficacy to enhance what students expect they will achieve, as expectations are more closely associated with achievement/performance outcomes (McWhirter et al., 1998).

Perception of barriers to educational/vocational goals, moderated by type of goal measure. Perception of barriers was found to have a large hindering effect on intentions to persist (accounting for 23% of the variance in the negative direction). The effect of barriers on nontraditional career goals was not significant; however, this result should be interpreted with caution as it was based on two effect sizes. A fundamental assumption of the SCCT framework is that individuals are more likely to translate their goal intentions into action if they perceive that there are minimal barriers likely to be encountered in their pursuits (Lent, 2005). Intention to persist reflected the likelihood that the student would make the decision to voluntarily drop out of college (e.g., Castillo et al., 2006). Thus, this finding supported the SCCT proposition that characteristics of the environment which are considered to be constraining (i.e., perception of barriers) were closely associated with proximal choices (i.e., asking a college student to determine her or his likelihood of dropping out of college).

Implications for counseling students in the educational/vocational choice process include helping students to identify and anticipate obstacles to choice implementation as well as the likelihood of encountering these challenges (Luzzo & McWhirter, 2001). The next step would be to prepare students to cope with or manage barriers by reinforcing

barrier-coping strategies such as taking planned positive action (Gloria, Castellanos, & Orozco, 2005; Gloria, Castellanos, Scull, & Villegas, 2009).

Adult support to goals, moderated by type of goal measure. The current meta-analysis found differential effects for adult support on educational/career expectations, persistence intentions, and aspirations. Type of goal measure moderated the strength of the association between support from an important adult and educational/vocational goals such that relations were strongest for expectations (accounted for 11% of the variance). This finding suggested that researchers should conceptualize and measure supports specific to the type of goal outcome being measured given the current finding that the relations between adult support and goals varied in magnitude based on type of goal outcome. Overall, however, adult support had a small effect on educational/vocational goals. In the current study, the methodological class of adult support included support from parents, mentors, and school personnel. These various sources of support were unable to be differentiated because of the small number of effect sizes that would have resulted in each class. Thus, one direction for future research is to examine the relative impact of varying sources of support (e.g., mother, father, and teacher). Father support has been shown to have significant direct effects on educational plans and career expectations while teacher and mother support have been shown to have direct effects on mediating variables in the goal formation process (McWhirter et al., 1998). Moreover, parental support has been shown to be predictive of career aspirations (Flores & O'Brien, 2002) and nontraditional career self-efficacy (Flores et al., 2006). Finally, previous research has demonstrated that high achieving Latina students benefitted most (enhanced

view of what students expected of themselves) from high teacher expectations (Gandara, 1982; 1994).

Developmental stage of sample as a moderator. The overall relations between perception of barriers and educational/vocational goals varied depending on the developmental stage of the sample such that barriers were more strongly associated with goals for college students when compared to precollege students. For college students, perception of barriers accounted for 23% of the variance in educational/vocational goals while it was not a significant predictor for precollege students. The stronger relation between perceived barriers and educational/vocational goals for college students when compared to younger students is possibly a function of an increased ability to appraise their environment and the opportunities available to them, distinguished from an assessment of their skills. An alternative interpretation is that current measures of education and career related barriers did not capture the types of barriers that were more directly related to goals for Latina/o adolescents. The likelihood of encountering racial/ethnic discrimination was the most consistent barrier assessed by the measures of barriers in the studies included in this meta-analysis. However, perceptions of other types of barriers may be more relevant for younger students. For example, extant research on Latina/o youth demonstrated that structural qualities (e.g., neighborhood quality) were indirectly related to outcomes including self-efficacy, academic aspirations, and grades via adolescents' perceptions (Plunkett, Arbaca-Mortensen, Behnke, & Sands, 2007).

Moreover, it is noteworthy that partitioning students based on developmental stage did not provide a completely adequate model of effect size variability as indicated by significant within class effects for precollege students. This potentially occurred

because the precollege methodological class included both middle school and high school students. Future research is needed to ascertain the varying magnitude of the relations between perception of barriers and goal representations across age groups.

Study source as a moderator. Study source moderated the relations between self-efficacy, adult support, peer support and educational/vocational goals. Across all constructs, associations were stronger in unpublished studies. This finding might have resulted from differences between published and unpublished studies on the operationalization of educational and vocational goals. In unpublished studies, goals were operationalized and assessed in more content specific terms and thus more consistent with the SCCT framework than published studies (Flores, 2009). Also, in all unpublished studies with the exception of one, goals reflected educational pursuits rather than career. However, given that unpublished studies have not been evaluated at the same level of scrutiny as published studies, one might argue that the findings may be overestimates (effects were smaller in published studies) of the true population effects (Flores). Methodological limitations of unpublished studies such as sampling bias, unreliability of measures, and questions of construct validity are implicated. It should be noted that study source did not provide a completely adequate model of effect size variability as indicated by significant within class effects for career-related self-efficacy, adult support, and peer support classes.

Meta-analyses of the Relations between Sociocultural Influences and Career-related Self-efficacy: Implications for Research and Practice

The meta-analytic methods involved in the current study allowed for the calculation of the magnitude of the overall relations between career-related self-efficacy

and sociocultural person variables (i.e., Anglo acculturation, Latino acculturation, and ethnic identity) as purported in the SCCT framework. Across various types of goal measures, student samples, and study sources, these variables individually accounted for 7% (ethnic identity), 4% (Anglo acculturation), and 1% (Latina/o acculturation) of the variance in educational/vocational goals. The interpretation of these findings should be considered in light of the strength of the associations which were small.

Ethnic identity had a small and positive effect on career-related self-efficacy in the current study. Gushue (2006) explored the relation of ethnic identity to self-efficacy from an SCCT framework. Results from his study with a sample of 128 Latina/o ninth graders revealed that ethnic identity had a direct and positive relation to career decision-making self-efficacy and an indirect relation, mediated by self-efficacy, to career planning outcome expectations. Moreover, past research on academic achievement indicated that students from underrepresented racial/ethnic minority groups who were better situated for learning were those who developed positive identification with their own culture as well as positive relations with members of the majority culture (Okagaki, 2006).

Previous research with Latina/o students has resulted in mixed findings for the relation between acculturation and career-related self-efficacy (Flores et al., 2006; Flores & O'Brien, 2002; Navarro et al., 2007; Rivera et al., 2007). In the current investigation, Anglo acculturation had a significant positive effect on career-related self-efficacy. This finding was consistent with previous research that suggested that an individual's ability to effectively navigate within a culture increases her or his access to role models and

provides more opportunities for learning experiences within that particular culture (Flores, Robitschek, Celebi, Anderson, & Huong, 2009).

Moreover, in the current study, Latino acculturation had an extremely small effect on career-related self-efficacy. In a previous study on Mexican American high school students, Mexican-oriented acculturation accounted for a small amount of the variance in goals after removing the variance accounted for by Anglo acculturation and career decision-making efficacy (Flores et al., 2006). Given that the institutions of education and work in the United States reflect the values, beliefs, and practices of the predominate Anglo culture, those students who felt connected with Anglo culture may have felt more congruent in these settings (Flores et al.) and thus, more effectual in their education and career planning. These findings have important implications regarding the role of acculturation in the lives of Latina/o students, particularly for those who are recent immigrants or first generation. The current findings suggested that the degree of affiliation with Anglo or Latina/o culture had little association with students' career-related self-efficacy.

In addition, this meta-analysis was conducted on Latina/o students across various generation statuses and in all studies included in these analyses with the exception of one (where language usage was assessed as a behavioral indicator of acculturation), a bidimensional measure of acculturation was used [i.e., Acculturation Rating Scale for Mexican Americans-II (Cuellar, Arnold, & Maldonado, 1995)]. Bidimensional measures assessed the extent to which students have learned about and adopted predominate White norms as well as the degree to which the student maintains her or his heritage culture. However, to more fully understand the relevance of acculturation to the educational and

career development for Latina/o students, more research is needed that captures how the acculturation process creates a source of distress when values from one culture conflict with those of another. This is particularly important as acculturation only accounted for a small percentage of the variance of both career-related self-efficacy and educational/vocational goals. Cano and Castillo (2010) found that conflict between acculturation and enculturation accounted for a considerable amount of the variance in Latina college student distress. Stress resulting from acculturation and enculturation processes may be further complicated by factors related to specific nationality (voluntary or involuntary immigrants), socioeconomic status, and racial/ethnic diversity in the settlement area (Roger, Cortes, Malgady, 1991). Current assessments of acculturation inadequately assess this complexity. Future research is needed to examine the relative importance of these constructs across generation statuses in predicting vocational and academic goals and achievement.

Interventions designed to enhance career-related self-efficacy based on sociocultural person variables should be implemented with caution as effect size estimates in the current study for this group of predictor variables were small. With regard to the direction of the relations, the current findings suggested that Latina/o students who have both a positive sense of their ethnic group membership and adopt the values and practices of majority culture will also have an enhanced sense of their self-efficacy in the education or career realm.

Direction of the Effect of Latino Acculturation and Generation Status

The direction of the effect of Latino acculturation (or enculturation) on career-related self-efficacy as well as educational/vocational goals was indeterminable as some

studies included in the current meta-analysis indicated a negative relation and others a positive relation. The same pattern of contradictory findings was found for the direction of the effect of generation status on educational/vocational goals.

In support of a negative association, Ogbu (1991) contended that identification with Latino cultural practices and values may be at odds with an academic identity because this identity develops in opposition to systems of education that are experienced as disenfranchising and oppressive. Moreover, in the current meta-analysis mixed findings for the directionality were also found for generation status. Research has supported that children of immigrants (i.e., individuals who immigrated to the U.S. with their parents when they were children) are more academically motivated than native born children (Alfaro et al., 2006). First generation immigrants (voluntary minorities) and their children, according to Ogbu (1991), view barriers and obstacles as temporary and unintended, and thus maintain an optimistic view about what they can accomplish. However, second generation individuals (and beyond) and involuntary minorities (i.e., those brought into a host culture through conquest or colonization such as Mexican Americans in the southwest) tend to adopt a less optimistic and oppositional frame of reference. In light of the varied sociopolitical histories of Latina/o communities in the United States, future research that disaggregates Latina/o cultural groups is needed to disentangle the contrasting findings for Latino acculturation (enculturation) and generation status.

A Critical Analysis of Current Research on SCCT with Latina/o Student

Populations

After the variance due to moderator effects was removed in the current meta-analysis, much of the variance of educational and vocational goals was unexplained. Methodological limitations in the 25 studies included in the current meta-analysis contributed to these findings. Eight studies that assessed educational and/or vocational goals used a single item measure to assess this construct. For example, in one study, educational goal expectations and aspirations were each assessed using individual items. One item asked participants to indicate the highest level of education they expected to complete, and another item asked the participant to indicate the highest level of education they hoped to complete. Possible responses were the same for both items and ranged from “some high school” to “doctoral or professional degree” (Flores et al., 2008). In a single item measure, indices of reliability cannot be calculated and thus the degree to which the item was free of measurement error was unknown. Moreover, we cannot be certain that the item truly assessed the construct of interest. The associations between the predictor variables of interest and goal outcomes thus were limited by error in measurement. This methodological limitation might be corrected in future research that utilizes composite scales with sound psychometric properties to assess goal outcomes.

Furthermore, it is possible that other sociocognitive mechanisms in the goal formation process as posited by SCCT that were unexamined in the current study would have accounted for more of the variance. Outcome expectations refer to an individual's beliefs about probable response outcomes (Bandura, 1986). This variable was not included in the current meta-analysis as there were not enough studies that had examined

the association between outcome expectations and goals. Research has demonstrated that, as a result of systemic oppression, outcome expectations exert a greater influence than self-efficacy beliefs on the career choice behavior of racial-ethnic minority adolescents (Morrow, Gore, & Campbell, 1996). That is, racial/ethnic minority adolescents may have learned that their ability to successfully accomplish certain tasks will not necessarily result in the same outcomes as their White peers. Little research has examined the role of outcome expectations in the career development of Latina/o students in particular, and underrepresented populations more generally.

The current findings provided support for interventions based on career-related self-efficacy designed to augment educational/vocational goals. However, more work is needed that examines the extent to which self-efficacy beliefs interact with cognitive abilities to influence goal outcomes (Lubinski, 2010). Of the studies reviewed in the current meta-analysis, an indication of academic ability and/or performance was provided in only 6 studies as a predictor variable, in five studies to describe the sample, and in two studies as an outcome variable. In all cases, GPA was used as the marker of ability/performance. Because the majority of studies did not account for the influence of ability, this question could not be tested in the current meta-analysis. Thus, further research with Latina/o populations is needed to assess the extent to which self-efficacy beliefs and other factors related to educational and career development provide incremental validity relative to cognitive abilities. Lubinski contended that in the examination of any system of relations, such as that posited by SCCT, researchers must first account for the variable that produces the largest amount of variance. In his critique of the current state of the literature on SCCT, Lubinski highlighted the accumulation of

research, longitudinal work included, that provided strong evidence for the predictive value of cognitive ability. In our analyses of the applicability of SCCT with Latina/o students, a similar critique is warranted. Thus, future researchers guided by an SCCT framework must consider the extent to which self-efficacy contributes to the prediction of goals, performance, and persistence, after taking into account cognitive ability.

A misinterpretation of the relation between career-related self-efficacy and goal outcomes is that, invariably, career-related self-efficacy will have a positive effect on educational/vocational goals despite actual cognitive ability (Multon et al., 1991).

Bandura (1986) highlighted the importance of accuracy in one's appraisal of her or his abilities (i.e., self-efficacy) and underscored the negative consequences that follow gross over or underestimations of personal efficacy. In the realm of educational/vocational development, large overestimates of career-related self-efficacy may lead an individual to engage in learning activities or seek career opportunities that are beyond her or his capabilities. This might then result in feelings of failure and discouragement (Multon et al.). Further, large underestimates of career-related self-efficacy may lead an individual to avoid learning activities and career development opportunities. In their meta-analytic path analysis of social cognitive predictors of college students' academic outcomes, Brown and colleagues (2008) found that SCCT provided an adequate to excellent model of academic outcomes. However, the model fit was improved when general cognitive ability was used as an operationalization of ability/past performance in lieu of GPA. An important finding in their meta-analytic review was that both general cognitive ability and high school performance had no direct relations with college retention outcomes. The influence of ability on retention outcomes was largely indirect through their influences on

self-efficacy beliefs and goals. In the current study, the predictive validity of career-related self-efficacy above and beyond cognitive ability was unable to be tested. Thus, a fruitful direction for future research is to assess the simultaneous effects of cognitive ability and the variables of interest in the current study.

An alternative interpretation of the current pattern of findings is that other factors that have not been considered within an SCCT framework contributed to the unexplained variance. Lent and colleagues (2000) contended that, particularly for racial and ethnic minorities, SCCT could be enhanced by embedding the theory in contextual/ecological models. An ecological perspective applied to the educational and career development of racial and ethnic minority people accounts for the complex and varied systemic factors that shape educational and career related behavior (Cook, Heppner, & O'Brien, 2005).

Cook et al. (2005) provided an application of Bronfenbrenner's (1977) ecological model to explain the career development of women and racial/ethnic minorities. To achieve parsimony, Cook et al. made distinctions between the individual and the social environment. However, because individuals are thought to be in continuous interaction with the social environment, these distinctions were noted by the authors to be somewhat artificial (Cook et al.). Even when acting in isolation, individuals are influenced by their environment through either direct (e.g., social customs, norms, and laws that define behavior) or internal (e.g., self-concept influenced by their history of interactions with others) means. In turn, individuals intricately influence and shape their environment (e.g., self-fulfilling prophecies) (Cook et al.). An adolescent's connections with her or his parents or teachers represent microsystem influences while the interconnections between the adolescent's parents and teachers represent mesosystem influences. Further,

socioeconomic status and public policy (e.g., college eligibility criteria) represent exosystemic factors. The macrosystem encompasses the influence of a student's acculturation level or migration history, as two examples, on her or his development.

Consistent with the ecological model, some researchers have examined the factors that are congruent with the impact of micro-, meso-, exo-, and macro-systems on the educational and vocational development of Latina/o students. Specifically, studies that examined the intersections of acculturation, career-related self-efficacy, with parental support (Flores & O'Brien, 2002; McWhirter et al., 1998), and connectedness to family and school (Karcher & Lee, 2002) are examples of investigations of the career-related factors that influence Latina/o student development from an ecological perspective.

The educational and career development of Latina/o students must be understood from an ecological perspective to develop theories and interventions that capture and are responsive to the unique educational/vocational needs of Latina/o students. The histories of Latina/o communities in the U.S. that correspond with institutionalized systems of oppression have led to vulnerable community-based academic environments. Students in these environments receive less than the required level of college preparatory courses and have less access to resources that support educational and career progress (Salgado, 2007). Thus, expanding the construct of perception of barriers to include perceptions of structural barriers, such as academic under preparation and neighborhood qualities (e.g., unemployment and crime), might enhance the predictive efficiency of this variable, particularly for Latina/o adolescents.

In the current meta-analysis, the most robust association found was between perception of barriers and educational/vocational goals for Latina/o college students.

However, this same variable was not a significant predictor for precollege students. Relatedly, socioeconomic status did not account for a substantial amount of the variance across all studies that included an indicator of socioeconomic status in the analyses. There are at least two explanations for this finding. First, it is possible that socioeconomic status actually contributes little to the goal formation process when compared to more substantial contributors (e.g., self-efficacy, perception of barriers). Socioeconomic status may capture redundant or proxy information when we think of the influence of perceptions of barriers or career-related support. The second explanation is more methodological than substantive and perhaps a more plausible reason why socioeconomic status did not account for a substantial amount of the variance in goal outcomes. Only four studies included socioeconomic status as a variable and thus the total sample size that provided the basis for the estimation of population effects was small. Also, these samples were made up of students predominantly from low socioeconomic backgrounds and thus range restriction could have potentially given rise to small effects. Across studies, the indicators of socioeconomic status were varied and included the following; parents' occupation or level of educational attainment, self-identified social class, combined parental income, and the Hollingshead Four-Factor Index of Social Status (1975).

Social class is an important cultural dimension in the educational and career development of Latina/o students (Plunkett et al., 2007). A problem with conceptualizations of social class in the current literature on Latina/o students is that it has been conflated with socioeconomic status. The latter has been typically measured by objective indices such as income, occupation or education while the former refers to a

subjective sense of identity (Liu et al., 2004). Current thinking with regard to socioeconomic status suggested that it should be distinguished from social class because in addition to providing an indication of one's location within an economic hierarchy (captured by socioeconomic status), social class indicates the extent to which the individual is aware of her or his location and of others who may share a similar position (Liu et al.). Furthermore, social class is an important variable in vocational psychology as it has been associated with an individual's exposure to structural barriers (Plunkett et al.).

Latina/o students have the poorest educational graduation rates across all racial and ethnic groups. Disparities in educational attainment between Latina/o students and other racial/ethnic students begin as early as kindergarten and continue through college. Previous research examining structural barriers demonstrated that achievement was compromised by a variety of factors, including family responsibilities, family poverty, lack of participation in preschool, attendance at poor quality elementary and high schools, placement into lower-track classes, limited neighborhood resources, and lack of presence of role models (Zambrana & Zoppi, 2002). The majority of studies evaluated in the current meta-analysis failed to include an examination of the structural influences on the educational and career goal formation processes for Latina/o students. Rather, as SCCT was the most consistently used theoretical framework, the current literature tended to emphasize education and career-related self-efficacy in the development of education and career-related goals. However, some have argued that economic and social change must occur in tandem with building personal agency (i.e., self-efficacy) if educational and vocational disparities between Latina/os and other racial and ethnic students are to be reduced (Zambrana & Zoppi). The current SCCT literature on Latina/o students reflects a

dearth of studies that examine the processes through which perceptions of structural barriers can influence goal outcomes. Studies that combine both individual and structural predictors would be instrumental for theory building, policy makers, and researchers.

Familismo is an important cultural variable in Latina/o psychology. Examining the role of familismo in the goal formation process as a microsystem influence is a fruitful area for future research as the current body of research, primarily informed by SCCT, has not included this variable. The value of familismo refers to unity and loyalty within the family (Sue & Sue, 2003) and emphasizes that each family member has a unique role and particular responsibilities within the family system (Gomez et al., 2001). Thus, a Latina/o student's contradictory career-related goals and values in comparison to those of their parents could give rise to intergenerational conflict and have a hindering effect on the goal formation process (Constantine & Flores, 2006). Alternatively, Gomez and colleagues reported that familismo values helped high achieving Latina women manage conflict that surfaced between family and career needs. Also, researchers suggested that interpersonal, familial relations may have important effects on the formation of efficacy beliefs (Lent & Lopez, 2002). Flores and colleagues (2009) proposed that individuals who internalize the cultural value of familism may have a strong sense of identity. This stronger sense of identity, in turn, facilitates exploration and efficacy to approach a variety of career-related tasks. Moreover, a strong loyalty to family may motivate students to bring pride and financial support to the family through high career attainment (Flores et al.). Phinney, Dennis, and Osario (2006) found that in addition to ethnic identity, family interdependence contributed positively to Latina/o students' reasons to attend college. The studies reviewed in this section underscore the

significance of familismo in the educational and career paths of Latina/o students. The current body of knowledge on Latina/o students is limited in the extent to which it addresses this construct.

Limitations of the Current Meta-analysis

The findings in the current study should be considered in light of a number of limitations. It is likely that the current meta-analysis represented bias in sampling by virtue of the inclusion/exclusion criteria used and the methods implemented for the literature search (Rosenthal & DiMatteo, 2001). A substantial number of studies reporting on the variables of interest for Latina/o students were omitted because zero-order correlations were not reported by the authors nor could they be calculated based on the statistical information that was provided. This limitation applies to meta-analysis more broadly. Current conventions of data reporting were a limiting factor and can be circumvented in the future if researchers attend to adequate reporting of summary statistics. As recommended by authors of previous meta-analyses (see Multon et al., 1991), means and standard deviations of all measures for all groups at all measurement points should be included, as well as values of all test statistics, degrees of freedom, and exact probability levels. It is critical that this information be reported regardless of whether statistical significance was obtained.

A strength of meta-analysis is that investigators do not have to rely on the significance test of any one finding as an indicator of its value. Thus, even small and nonsignificant effects contribute to the overall picture of the results (Rosenthal & DiMatteo, 2001). However, considerations of power in terms of the interpretation of the current findings represented a limitation in the current study. Power in meta-analysis is

based on the effect size relative to its variability (Quintana & Minami, 2006). Failing to reject the null (retain that there is no relation) in meta-analysis is more scientifically important due to enhanced power levels whereas in primary studies, this is difficult to interpret. However, in the current meta-analysis there may not have been enough statistical power in the methodological classes with only two effect sizes (i.e., 11 classes of goal measures, two college student sample classes, and one unpublished studies class). Although meta-analysis only requires two bivariate effects for the computation of relevant statistics (e.g. population correlations), some have contended that a k of three is the minimum number of source studies from which population estimates should be derived (Hedges & Pigott, 2004). For this reason, a rejecting of the null was not interpreted in the current meta-analysis.

Meta-analysis typically includes studies that vary considerably in quality as indicated, for example, by sample size and reliability of measures (Rosenthal & DiMatteo, 2001) and this was a limitation in the current study. Future investigators might weight each study by a global estimate of study quality, determined according to characteristics associated with the design quality of the study such as include sample size adequacy (i.e., statistical power) and reliability of measures. As most goal outcomes in the current meta-analysis were assessed with a single item, weighting each effect size by internal consistency reliability of measures was not possible.

The current meta-analysis, as is consistent with meta-analytic methods more broadly, systematically assessed only individual effects (zero-order correlations). Meta-analysis has been critiqued to the extent that there is an overemphasis on individual effects to the detriment of examination of the interactive/indirect or effects of

independent and dependent variables, such as those hypothesized by the SCCT model. However, it has been argued that this simple systematic approach is essential (Rosenthal & DiMatteo, 2001). Prior to examining the interactive/indirect effects, researchers need a clear picture of the straightforward relations among the variables of interest. From that point, future research can be built upon what has been shown to be important through meta-analytic methods. The concentration on singular effects allows researchers to target specific questions and identify the essential elements of the questions under study (Rosenthal & DiMatteo).

Summary of Recommendations for Future Research

This section provides a summary of directions for future research discussed throughout this chapter. These recommendations were generated primarily from what is missing in the studies reviewed in this meta-analysis on Latina/ student educational and career development.

- Additional research is needed on the construct validity of both domain specific self-efficacy and domain specific goals. It is possible that parallel measures used in the studies to date capitalize on shared method variance (e.g., both were self-report and similar if not identical in item content).
- Another direction for future research is to examine the extent to which the impact of social support varies depending on the source of support (e.g., mother, father, and teacher). The effect size estimates in the current meta-analysis represented an average across various sources of support thereby obscuring the differences in the strength of the effect for one source over another.

- Current assessments of acculturation inadequately assess intrapsychic conflict that might result from enculturation and acculturation processes and the extent to which such conflict frustrates education and career development. Stress resulting from acculturation and enculturation processes may vary across variables such as specific nationality (e.g., Mexican American/Chicano versus Cuban American), socioeconomic status, and the student's experiences with racial/ethnic diversity. Future research is needed to examine the relative importance of acculturative stress across generation statuses and nationalities in predicting vocational and academic goals.
- Additionally, future research is needed to disentangle the contrasting findings for Latino acculturation or enculturation and generation status. Again, it is critical that such investigations disaggregate specific Latina/o groups in light of their varied sociopolitical histories.
- The findings based on the studies included in the current meta-analysis call for an expansion of the construct of perception of barriers to include perceptions of structural barriers. Studies that examine the influence of perceptions of structural barriers on goal outcomes independently or concomitantly with individual variables are needed. Structural barriers such as school quality, access to college preparatory classes, eligibility criteria for financial aid based on citizenship status, and neighborhood resources are recommended for inclusion in future investigations.
- Methodological limitations in the current state of the literature might be corrected in future research that utilizes composite scales to assess goal outcomes.

- Another fruitful direction for future research is to assess the simultaneous effects of cognitive ability and the variables of interest in the current study.
- In future research, investigators might attend to a more thorough reporting of summary statistics regardless of whether the effects were statistically significant. This would include the means and standard deviations of all measures for all groups at all measurement points as well as values of all test statistics, degrees of freedom, and exact probability levels.

Conclusion

Overall, the results of this analysis have supported propositions of SCCT for Latina/o students. The current study provided a statistical integration of the literature, accounting for the similarities and differences across 26 independent samples drawn from 25 studies. Most importantly, findings indicated that across various study and sample characteristics, effect sizes were small for all the variables of interest with the exception of career-related self-efficacy (which evidenced a moderate effect size). The identification of type of goal measure, developmental stage of sample, and study source as moderator variables in the current study helped to clarify knowledge of the overall strength of the associations. Type of goal measure was found to moderate the effects of career-related self-efficacy, perception of barriers, and support from an important adult on educational/vocational goals while developmental stage of the sample moderated the main effects of perception of barriers. Moreover, study source moderated the effects of career-related self-efficacy, support from an important adult, and support from peers. Finally, the contributions of the current work highlighted limitations in the literature, generated directions for future research, and provided recommendations for intervention

and prevention efforts with Latina/o communities. In light of the rise of Latina/o communities in the U.S., and the disparities that exist in educational and career attainment, it is critical that vocational researchers continue to investigate the factors that may positively influence the educational and career development of Latina/o students.

APPENDIX A: SUBJECT TERMS TABLE

Database Source	Latina/o (Hispanic)	Students	Goals	Choice (choice behavior)	Aspirations	Expectations	Educational	Vocational	Career
PsycINFO	<u>Narrower terms:</u> Mexican American <u>Related terms:</u> Minority groups <u>Year added:</u> 1982	<u>Narrower terms:</u> classmates, college students, elementary school students, high school students, international students, junior high school students, kindergarten students, preschool students, <u>Related terms:</u> education, school retention, student attrition, student characteristics <u>Year added:</u> 1967	<u>Narrower terms:</u> educational objectives, organizational objectives <u>Related terms:</u> approach avoidance, approach behavior, aspirations, extrinsic motivation, goal orientation, goal setting, incentives, intention, intrinsic motivation, motivation, needs <u>Year added:</u> 1967	<u>Narrower terms:</u> <u>Related terms:</u> behavior, decision making, classification (cognitive process), framing effects, freedom, human mate selection, neuroeconomics, prospect theory, psychological reactance, social dilemma, uncertainty, utility theory, volition <u>Year added:</u> 1967	<u>Narrower terms:</u> educational aspirations, occupational aspirations, aspiration level <u>Related terms:</u> aspiration level, goal orientation, goal setting, goals, motivation, ambition <u>Year added:</u> 1967	<u>Narrower terms:</u> Parental Expectations, Role Expectations, teacher expectations, <u>Related terms:</u> estimation, future, halo effect, hope, self efficacy, self fulfilling prophecies <u>Year added:</u> 1967	<u>Narrower terms:</u> <u>Related terms:</u> educational + administration, aspirations, attainment level, audiovisual aids, background, counseling, degrees, diagnosis, field trips, incentives, measurement, objectives, equal education, school based intervention <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> occupational adjustment, occupational aspirations, occupational choice, occupational guidance, vocational counselors, vocational education, vocational education teachers, vocational evaluation, occupational guidance, occupational interests, vocational maturity, occupational preference, vocational rehabilitation	<u>Narrower terms:</u> <u>Related terms:</u> occupational aspirations, career change, occupational choice, occupational guidance, career development, career education, vocational maturity, occupational preference, career development, occupations <u>Year added:</u>

								<u>Year added:</u>	
ERIC	<u>Narrower terms:</u> Puerto Ricans, Cubans, Haitians, Maya (People), Mexicans <u>Related terms:</u> American Indians, Hispanic Americans , Latin American Culture, Latin American History, Latin American Literature <u>Year added:</u>	<u>Narrower terms:</u> Hispanic American Students, Secondary School Students, Bilingual Students, elementary school students <u>Related terms:</u> Parent Student Relationship, Student characteristics , student rights, student mobility, student role, student needs, student development, student diversity, etc. <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> Needs, Aspiration, Needs assessment, performance, quotas, evaluation, standards, failure, goal orientation, success, goal setting, task analysis, guidelines, intention <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>	<u>Narrower terms:</u> occupational aspiration, parents aspiration, academic aspiration <u>Related terms:</u> performance , ability, self-concept, self motivation, achievement , student educational objectives, achievement need, aptitude, goal orientation, goal setting, intention, motivation, objectives <u>Year added:</u>	<u>Narrower terms:</u> teacher expectations of students, work life expectancy, <u>Related terms:</u> Prediction, predictive validity, probability, achievement, aptitude, reliability, attitudes, self efficacy, cognitive mapping, cognitive structures, stereotypes, evaluation, success, symptoms (Individual disorders), failure, goal setting, intention, intuition, opinions, performance <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>	<u>Narrower terms:</u> occupational <u>Related terms:</u> occupational aspiration <u>Year added:</u>	<u>Narrower terms:</u> career academics, career awareness, career centers, career change, career choice, career counseling, career development, career education, career exploration, career guidance, career opportunities , career planning <u>Related terms:</u> <u>Year added:</u>
ProQuest	<u>Narrower terms:</u>	<u>Narrower terms:</u>	<u>Narrower terms:</u>	<u>Narrower terms:</u> <u>Related terms:</u>	<u>Narrower terms:</u>	<u>Narrower terms:</u>	<u>Narrower terms:</u>	<u>Narrower terms:</u>	<u>Narrower terms:</u>

	<u>Related terms:</u> <u>Year added:</u>	<u>Related terms:</u> <u>Year added:</u>	<u>Related terms:</u> <u>Year added:</u>	<u>Year added:</u>	<u>Related terms:</u> <u>Year added:</u>	<u>Related terms:</u> <u>Year added:</u>	<u>Related terms:</u> <u>Year added:</u>	<u>Related terms:</u> <u>Year added:</u>	<u>Related terms:</u> <u>Year added:</u>
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Database Source	Self-efficacy	Acculturation	Ethnic Identity	Barriers	Support
PsycINFO	<u>Narrower terms:</u> <u>Related terms:</u> academic self concept, expectations, helplessness, instrumentality, self confidence, self evaluation, self fulfilling prophecies, self perception <u>Year added:</u> 1985	<u>Narrower terms:</u> <u>Related terms:</u> cross cultural communication, cross cultural psychology, cultural sensitivity, marginalization, multiculturalism <u>Year added:</u> 2003	<u>Narrower terms:</u> <u>Related terms:</u> cultural sensitivity, group identity, identity formation, in-group outgroup, reference groups, self concept, social identity <u>Year added:</u> 1973	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>
ERIC	<u>Narrower terms:</u> <u>Related terms:</u> self efficacy, achievement, behavior development, cognitive structures, expectation, individual power, learning theories, meta-cognition, self actualization, self control, self motivation <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> biculturalism, cultural pluralism, culture, immigrants, refugees, social integration, subcultures <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> social integration, ethnicity, intergroup relations, ethnicity, ethnic stereotypes, ethnic studies, ethnocentrism, ethnography <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> structural unemployment, access to computers, access to education, access to health care, accessibility, bias, disadvantaged environment, economic opportunities, educational change, education discrimination, educational environment, equal education, program implementation <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> family programs, social support groups, services, supported employment <u>Year added:</u>
ProQuest	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>	<u>Narrower terms:</u> <u>Related terms:</u> <u>Year added:</u>

APPENDIX B: MAIN SEARCH TABLE

Title of Database	Name of Host/Vendor	Date of Search	Years Covered by the Search	Language Restrictions	Search Parameters	Total # of Citations	Total # of Relevant Citations (go to Excel File here)	Location of Relevant Citations	Descriptive Summary of Search Strategy
PsycInfo	Ebsco	2-24-10	1996-2009	English	Flores, Lisa Y	39	10	cd	
		3-2-10	1966-2009	English	Gloria, Alberta M	35	2	flash	
		3-4-10	1993-2008	English	Gushue and George	21	3	flash	
		3-4-10	1998-2009	English	Navarro and Rachel	12	4	All saved under Flores	
		3-4-10	1993-2009	English	Solberg	25	5	flash	
		3-4-10	1990-2009	English	Luzzo	47	3	flash	
		3-4-10	1988-2009	English	McWhirter	43			

Title of Database	Name of Host/Vendor	Date of Search	Years Covered by the Search	Language Restrictions	Search Parameters	Total # of Citations	Total # of Relevant Citations (go to Excel File here)	Location of Relevant Citations	Descriptive Summary of Search Strategy
PsychInfo	Ebsco	2/20/10	2003 - 2009		Latino AND students AND self-efficacy	35	7	USB	Exclude dissertations and only search quantitative studies
PsychInfo	Ebsco	2/23/10	2002-2009		Latino AND students AND acculturation	77	3	USB	Exclude dissertations and only search quantitative studies
PsychInfo	Ebsco	2/23/10	2003–2009		Latino AND students AND ethnic identity	52	2	USB	Exclude dissertations and quantitative studies
PsychInfo	Ebsco	2/28/10	1994 - 2009		Latino and Students and Barriers	56	3	USB	
PsychInfo	Ebsco	2/28/10	1991 – 2010	English only	Latino AND Students AND Support	193	5	USB	
PsychInfo	Ebsco	3/4/10-3/5/10	2003 - 2009		Latino AND Students AND Career	38	5	USB	Excluded dissertations and only searched quantitative studies
PsychInfo	Ebsco	3/5/10	1969 – 2002		Latino AND students AND Vocation	2	0	USB	Excluded dissertations
PsychInfo	Ebsco	3/5/10	2002 - 2009		Latino AND students AND goals	40	0 additional (some were already recorded)	USB	Excluded dissertations and only searched quantitative studies
PsychInfo	Ebsco	3/6/10	1963 - 2009	English only	Latino AND students AND choice	42	2	USB	Excluded dissertations and only searched qualitative studies
PsychInfo	Ebsco	3/7/10	2003 – 2010	English only	Latino and students and expectations	53	6	USB	Excluded dissertations and only searched qualitative

									studies
PsychInfo	Ebsco	3/7/10	2004 - 2009		Latino and Students and Aspirations	21	0 additional	USB	Excluded dissertations and only searched qualitative studies

Title of Database	Name of Host/Vendor	Date of Search	Years Covered by the Search	Language Restrictions	Search Parameters	Total # of Citations	Total # of Relevant Citations (go to Excel File here)	Location of Relevant Citations	Descriptive Summary of Search Strategy
ERIC	EBSCOhost	3/2/2010	1976-2010	English	Latino AND students AND career OR vocation OR education	796981	Too many to search		
ERIC	EBSCOhost	3/2/2010	1976-2010	English	Latino AND students AND career	138	10	Saved or on ERIC	
ERIC	EBSCOhost	4/6/2010	1976-2010	English	Latino AND students AND goals	181	0	n/a	
ERIC	EBSCOhost	3/20/2010	1976-2010	English	Latino AND students AND self-efficacy	25	7	Saved or on ERIC	
ERIC	EBSCOhost	4/2/2010	1976-2010	English	Latino AND students AND acculturation	78	4	saved	
ERIC	EBSCOhost	3/20/2010	1976-2010	English	Latino AND students AND ethnic identity	47	1	saved	
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latino AND students AND barriers	109	2	Not available online – see ERIC	
ERIC	EBSCOhost	3/2/2010	1976-2010	English	Latino AND students AND support	364	Too many to search		
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latino AND students AND social support	52	1	saved	

ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latina AND students AND career	26	4	saved	
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latina AND students AND goals	28	1	saved	
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latina AND students AND self-efficacy	7	0	n/a	
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latina AND students AND acculturation	17	0	n/a	
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latina AND students AND ethnic identity	12	0	n/a	
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latina AND students AND barriers	22	0	n/a	
ERIC	EBSCOhost	4/7/2010	1976-2010	English	Latina AND students AND support	63	1	saved	

Title of Database	Name of Host/Vendor	Date of Search	Years Covered by the Search	Language Restrictions	Search Parameters	Total # of Citations	Total # of Relevant Citations (go to Excel File here)	Location of Relevant Citations	Descriptive Summary of Search Strategy
							Repeat = already counted for on Excel table but found as a relevant citation for multiple searches		
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND career	4	1	Flashdrive	Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND vocation	0	0		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND education	43	8	Flashdrive or not available online	Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND goals	6	1 repeat		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND choice	3	0		Searching March 2010 and beyond; excluded qualitative data

Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND aspirations	3	1 repeat		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND expectations	4	2 repeat		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND self-efficacy	5	1 repeat		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND acculturation	5	2 repeat		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND ethnic identity	10	1 repeat		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND barriers	2	1 repeat		Searching March 2010 and beyond; excluded qualitative data
Psycinfo	EBSCO	10/20/10	1	None	Latino AND students AND support	10	1 new, 2 repeat = 3	Flashdrive	Searching March 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND career	1	1 repeat		Searching April 2010 and beyond; excluded qualitative data

ERIC	EBSCO	10/20/10	1	None	Latino AND students AND vocation	0	0		Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND education	28	2 repeat, 1 new = 3	Not available online, see ERIC	Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND goals	4	1 repeat		Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND choices	0	0		Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND aspirations	1	0		Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND expectations	3	1 repeat, 1 new = 2	Not available online, see ERIC	Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND self-efficacy	2	1 repeat		Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND acculturation	2	1 repeat		Searching April 2010 and beyond; excluded qualitative data

ERIC	EBSCO	10/20/10	1	None	Latino AND students AND ethnic identity	4	1 repeat		Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND barriers	3	0		Searching April 2010 and beyond; excluded qualitative data
ERIC	EBSCO	10/20/10	1	None	Latino AND students AND support	5	3 repeat		Searching April 2010 and beyond; excluded qualitative data

APPENDIX C: DOCUMENT EVALUATION MANUAL

Document Evaluation Cheat Sheet

This cheat sheet provides information to orient you as you evaluate each document identified in your search using the excel file.

- 1.) Is the document's subject within the defined scope based on the title and/or abstract?
Yes No

Scope of the study: The proposed meta-analysis seeks to examine the magnitude of the relations between career-relevant person variables (i.e., various forms of career-related self-efficacy), sociocultural person variables (i.e., acculturation and ethnic identity), and contextual variables (i.e., barriers and support) and vocational achievement for Latina/o students.

Key Words to Look for:

Latina/o students (k-12, college, professional school)

Educational and/or Career Expectations, Aspirations, Choice, and/or Goals

Self-efficacy

Acculturation

Ethnic identity

Barriers

Support

- 2.) Does the document describe a quantitative study?
Yes No

Literature NOT to be included:

Papers on theory

Narrative reviews of the literature

Book chapters that do not describe a study

Qualitative studies (no data analyzed)

Case studies

- 3.) Does the study provide statistical data on Latina/o **students**?
Yes, Latina/o students represent single sample
Yes, Latina/o students represent a sub-sample and data are reported separately
Yes, Latina/o students represent a sub-sample and data are NOT reported separately (Note: Cristina and Karen will contact the author)
No

- 4.) Does the study include **at least one** of the following variables: Education and/or career expectations, aspirations, choice, and/or goals?
Yes No

- 5.) Does the study include **at least one** of the following variables?
- (a) a measure of a career-relevant person variable (i.e., career-related self-efficacy)
 - (b) a measure of a sociocultural person variable (i.e., acculturation, ethnic identity)
 - (c) a measure of a contextual variable (i.e., perceived barriers, support)

Yes No

- 6.) Does the study provide sufficient information to calculate appropriate effect size estimates?

Yes No Don't know

This information includes:

Correlation coefficients

Means and SDs

T-tests

ANOVA

Other indices of association

For Cristina only:

- 7.) Does the document meet inclusionary criteria?**

Yes No

Final Notes:

- Each document should only be reviewed once in the excel file. Always be sure to check that you have not already entered a document as the relevant citations will appear in multiple searches.
- The last two columns on the Main Search Table (where it reads "Location of Relevant Citations" and "Descriptive Summary of Search Strategy") are for you to keep track of where you have saved or stored relevant citations and to make notes of any problems you have encountered.

APPENDIX D: CODING MANUAL

Coding Manual

*To make comments in the spreadsheet in the OLD version of excel, click on the cell you would like to comment on, then click Insert (in the tool bar), then click Comment. The upper right hand corner of the cell will turn red when there has been a comment inserted.

*To make comments in the spreadsheet in the NEW version of excel, click on the cell you would like to comment on, then click Review (in the tool bar), then click Insert Comment. The upper right hand corner of the cell will turn red when there has been a comment inserted.

File Name: Write the name of the file as it has been saved.

Coder Initials: Select your initials from the drop down menu.

Study Id #: Each study will be assigned an identification number. This number applies to the study itself (i.e., not the manuscript or report) and will be used for the purposes of tracking studies that appear in multiple reports. **The study Id # will be given to you by Cristina.**

First Coding Sequence: Study Characteristics

***Indicate MISSING for each study characteristic that is not specified within the report.**

Characteristics of the Report

Authors. List all authors in the order consistent with contribution. Use the following format: **Last Name, First Name, Middle Initial.**

Institutional Affiliation: Indicate the institution with which the primary author is affiliated.

Position: Indicate the position of the first author. Select one option from the drop down menu.

Year: Indicate the year the report was published.

Source: Indicate the source of the study report. Select one option from the drop down menu. Sources include peer reviewed journal articles, non peer reviewed journal articles, book chapters, convention presentations, dissertations, unpublished manuscripts, and technical reports.

Name of Source: Please document the name of the source.

Characteristics of the Sample

Total N: Number of **Latina/o students** in the sample.

Girls/Women N: Number of Latina girls/women in the sample **or zero**.

Boys/Men N: Number of Latino boys/men in the sample **or zero**.

Entire or Subsample: Latina/o students represent (select one option from the drop down menu):

- the Entire Sample
- a Subsample with Separate Data
- a Subsample/NOT Separate Data (**Give to Cristina if this is the case**).

Latina/o Sample Descriptor: How does the author describe the students in terms of race/ethnicity? Please use the same language as the author. Examples of labels authors use include Latina/o, Hispanic, Mexican American, Chicana/o, Puerto Rican, Cuban, Dominican, heterogeneous group, etc.

Student Population: Select one option from the drop down menu.

Elementary school, middle school, high school, community college, four-year college/university, graduate/professional school, other.

Other Student Population: Please indicate the student population using the same language as the author. This is only necessary if you could not indicate the student population in the drop down menu under “student population.”

Setting: Indicate the geographic location in which the students were recruited (e.g., urban, rural, mid-Atlantic region, public school, private school, etc.). Please use the same language as the author.

Mean Age of Sample:

SD of Age:

Age Range of Sample:

Girls/Women Mean Age:

Girls/Women SD:

Girls/Women Range:

Boys/Men Mean Age:

Boys/Men SD:

Boys/Men Range:

Income: Socioeconomic status reported using an index of income. Please use the same language as the author.

Class: Socioeconomic status reported using an index of social class. Please use the same language as the author.

Other Indicators of SES: Please use the same language as the author.

Parent's Level of Education: What is the highest level of education completed by the students' parents? Please use the same language as the author.

Mother's Level of Education: What is the mother's highest level of education completed? Please use the same language as the author.

Father's Level of Education: What is the father's highest level of education completed? Please use the same language as the author.

Generation Status: Please use the same language as the author.

English language proficiency: Please use the same language as the author. Only indicate English language proficiency if specified by the author.

Ability to Describe Sample? Yes or No. Does the author describe the sample in terms of ability? Indicators of ability include GPA, IQ, SAT scores, etc.

(If yes to question above) How Are Students Described? Please use the same language as the author.

Ability as Predictor Variable? Yes or No. Does the author use a measure of ability to predict an outcome? Examples include GPA, IQ, SAT scores, etc.

Ability as Outcome Variable? Yes or No. Does the author use other variables to predict performance? Examples include GPA, IQ, SAT scores, etc.

Operationalization of Ability: How is ability measured? Examples include GPA, IQ, SAT scores, etc. Please use the same language as the author.

Design of Study

Design of Study: Please select one of the following:

Descriptive field study (no experimental control, conducted in real-life settings)

Experimental field study (manipulate independent variable, conducted in laboratory settings)
Descriptive laboratory study (no experimental control, conducted in laboratory setting)
Experimental laboratory study (manipulation of independent variable, conducted in laboratory setting).

Between-groups or within-group: Please select one of the following:

Latina/o students are compared to other racial/ethnic groups

Latina/o students are NOT compared to other racial/ethnic groups

Theoretical Foundation of Study: Indicate the theoretical foundation of the study. Examples include Social Cognitive Career Theory, Farmer's Model of Career Commitment, Self-efficacy Theory, Social Learning Theory, developmental-contextual models, etc.

Variables

Self-efficacy Variables (i.e., education and/or career related self-efficacy or self-confidence)

Definition of self-efficacy: "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p.391). Self-efficacy, in contrast to self-esteem which is a more global construct, represents a constellation of self-referent beliefs connected to specific performance domains and activities. The performance domains or activities of interest in the current study are education and/or career related.

Self-efficacy Construct: Write the name of the construct. If missing, indicate missing and move on to the next construct.

Self-efficacy Measure: Write the name of the measure.

Self-report: Yes or No

Composite Scale or Single Item: Select one option.

Write Single Item: If a single item is used, please write the complete item.

Full Scale Alpha: Report the alpha level for the full scale in the CURRENT SAMPLE. An alpha level is a measure of internal consistency reliability not to be confused with other metrics of score reliability such as split-half or test-retest.

Subscales: Please write the name of each subscale on a **separate row**.

Subscale 1:

Subscale 2:

Subscale 3:

Subscale 4:

Subscale Alphas: Report alpha level for each subscale in the CURRENT SAMPLE.

Write the alpha level in the cell to the right of the subscale name

Subscale 1: alpha

Subscale 2: alpha

Subscale 3: alpha

Subscale 4: alpha

Outcome Expectations Variable

Definition of outcome expectations: “Beliefs about the consequences or outcomes of performing particular behaviors” (Lent, 2005, p. 104). While self-efficacy concerns beliefs about one’s ability to complete specific tasks or activities, outcome expectations represent appraisals of the consequences of engaging in a particular activity. There are several classes of outcome expectations that are believed to follow certain courses of action. These include certain physical (e.g., monetary), social (e.g., approval of significant others), or self-evaluative (e.g., personal satisfaction) outcomes. Furthermore, outcome expectations are appraised by the individual in terms of their valence (positivity vs. negativity), locus (self-administered vs. other-administered), or relative significance to the individual.

Outcome Expectations Construct: Write the name of the construct. If missing, indicate missing and move on to the next construct.

Outcome Expectations Measure: Write the name of the measure.

Self-report: Yes or No

Composite Scale or Single Item: Select one option.

Write Single Item: If a single item is used, please write the complete item.

Full Scale Alpha: Report the alpha level for the full scale in the CURRENT SAMPLE.

An alpha level is a measure of internal consistency reliability not to be confused with other metrics of score reliability such as split-half or test-retest.

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Subscale 1:

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Subscale 4:

Subscale Alphas: Report alpha level for each subscale in the CURRENT SAMPLE.

Write the alpha level in the cell to the right of the subscale name

Subscale 1: alpha

Subscale 2: alpha
Subscale 3: alpha
Subscale 4: alpha

Acculturation Variable

Definition of acculturation: A process in which members of one cultural group adopt the beliefs and behaviors of another cultural group (Birman, 1994). Psychological acculturation pertains to the changes in attitudes and behaviors in individuals as a result of contact with another cultural group.

Acculturation Construct: Write the name of the construct. If missing, indicate missing and move on to the next construct.

Acculturation Measure: Write the name of the measure.

Self-report: Yes or No

Composite Scale or Single Item: Select one option.

Write Single Item: If a single item is used, please write the complete item.

Full Scale Alpha: Report the alpha level for the full scale in the CURRENT SAMPLE. An alpha level is a measure of internal consistency reliability not to be confused with other metrics of score reliability such as split-half or test-retest.

Subscales: Please write the name of each subscale on a **separate row**.

Subscale 1:
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Subscale Alphas: Report alpha level for each subscale in the CURRENT SAMPLE. Write the alpha level in the cell to the right of the subscale name

Subscale 1: alpha
Subscale 2: alpha
Subscale 3: alpha
Subscale 4: alpha

Ethnic Identity Variable (e.g., ethnic identity, racial identity, collective self-esteem)

Definition of ethnic identity: The individual differences in “feelings of ethnic belonging and pride, a secure sense of group membership, and positive attitudes toward one’s ethnic group” (Phinney & Alipuria, 1996, p. 142).

Ethnic Identity Construct: Write the name of the construct. If missing, indicate missing and move on to the next construct.

Ethnic Identity Measure: Write the name of the measure.

Self-report: Yes or No

Composite Scale or Single Item: Select one option.

Write Single Item: If a single item is used, please write the complete item.

Full Scale Alpha: Report the alpha level for the full scale in the **CURRENT SAMPLE**. An alpha level is a measure of internal consistency reliability not to be confused with other metrics of score reliability such as split-half or test-retest.

Subscales: Please write the name of each subscale on a **separate row**.

Subscale 1:

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Subscale Alphas: Report alpha level for each subscale in the **CURRENT SAMPLE**.

Write the alpha level in the cell to the right of the subscale name

Subscale 1: alpha

Subscale 2: alpha

Subscale 3: alpha

Subscale 4: alpha

Barriers Variable

Definition of barriers: Perceived characteristics of the individual's environment that hinder personal agency in the education or career realms.

Barriers Construct: Write the name of the construct. If missing, indicate missing and move on to the next construct.

Barriers Measure: Write the name of the measure.

Self-report: Yes or No

Composite Scale or Single Item: Select one option.

Write Single Item: If a single item is used, please write the complete item.

Full Scale Alpha: Report the alpha level for the full scale in the CURRENT SAMPLE. An alpha level is a measure of internal consistency reliability not to be confused with other metrics of score reliability such as split-half or test-retest.

Subscales: Please write the name of each subscale on a **separate row**.

Subscale 1:

Subscale 2:

Subscale 3:

Subscale 4:

Subscale Alphas: Report alpha level for each subscale in the CURRENT SAMPLE.

Write the alpha level in the cell to the right of the subscale name

Subscale 1: alpha

Subscale 2: alpha

Subscale 3: alpha

Subscale 4: alpha

Support Variable (Social support from parents, peers, teachers, mentors, etc.)

Definition of support: Perceived characteristics of the individual's social network that enhance personal agency in the education or career realms. The concept of support has been conceived in the literature in various forms, namely as kinship support, peer support, school personnel support, school-community mentorship, and general support.

Support Construct: Write the name of the construct. If missing, indicate missing and move on to the next construct.

Support Measure: Write the name of the measure.

Self-report: Yes or No

Composite Scale or Single Item: Select one option.

Write Single Item: If a single item is used, please write the complete item.

Full Scale Alpha: Report the alpha level for the full scale in the CURRENT SAMPLE. An alpha level is a measure of internal consistency reliability not to be confused with other metrics of score reliability such as split-half or test-retest.

Subscales: Please write the name of each subscale on a **separate row**.

Subscale 1:

Subscale 2:

Subscale 3:

Subscale 4:

Subscale Alphas: Report alpha level for each subscale in the CURRENT SAMPLE.
Write the alpha level in the cell to the right of the subscale name

Subscale 1: alpha

Subscale 2: alpha

Subscale 3: alpha

Subscale 4: alpha

Goals, Choice, Expectations, Aspirations, Plans, Hopes, Intentions, Perceived Prospects,
Persistence Intentions, and drop-out expectations Variable(s)

Note: Expectations are thought to represent educational or career pursuits that an individual considers attainable given the reality of her or his life circumstances, while aspirations are thought to represent educational or vocational potentialities given optimal circumstances.

Career aspirations refer to the degree to which an individual aspires to leadership positions and to further her or his education within her or his chosen career.

Goals can be measured in terms of prestige or traditionality.

Goal Construct: Write the name of the construct. Examples include educational goals, traditional career choice, career aspirations, career expectations, educational plans, expectation to drop-out, intention to enroll in college, etc. If missing, indicate missing and move on to the next item.

Goal Measure: Write the name of the measure.

Self-report: Yes or No

Composite Scale or Single Item: Select one option.

Write Single Item: If a single item is used, please write the complete item.

Full Scale Alpha: Report the alpha level for the full scale in the CURRENT SAMPLE.
An alpha level is a measure of internal consistency reliability not to be confused with other metrics of score reliability such as split-half or test-retest.

Subscales: Please write the name of each subscale on a **separate row**.

Subscale 1:

Subscale 2:

Subscale 3:

Subscale 4:

Subscale Alphas: Report alpha level for each subscale in the CURRENT SAMPLE.
Write the alpha level in the cell to the right of the subscale name

Subscale 1: alpha

Subscale 2: alpha

Subscale 3: alpha

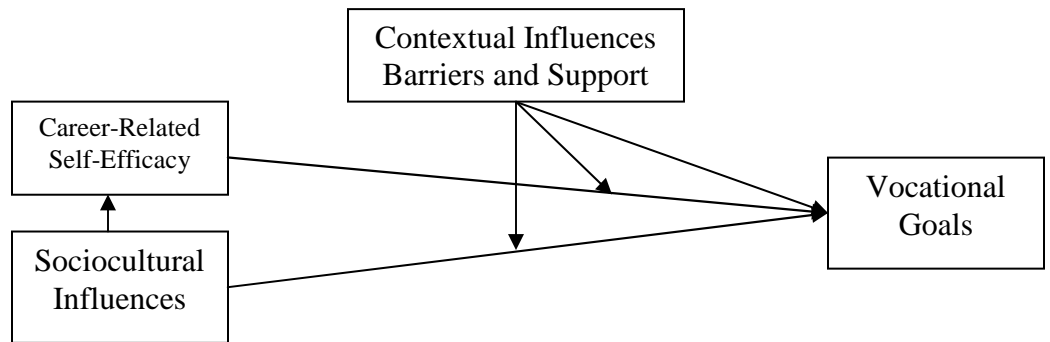
Subscale 4: alpha

Other Measures: Please list all other measures used in the study that you did not code.

Sorter #: Indicate the total number of rows created for this study. **Do this once you have completed coding the study. The number of rows a study occupies should correspond with the greatest number of subscales out of all the measures for that study. For example, if a measure has four subscales, then that study will occupy four rows.**

STOP HERE.

Figure 1. A Social Cognitive View of Vocational Achievement.



Note: All effects examined in the proposed study will be zero-order thus the moderating role of contextual influences will be assessed through a process of research synthesis.

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